

**WOMEN'S EMPLOYMENT IN  
PREGNANCY AND FOLLOWING  
BIRTH: EFFECT ON  
PSYCHOLOGICAL WELL-BEING**

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## **ABSTRACT**

Currently in Australia, 80% of women are employed during first pregnancy, and 40% resume employment in the first year postpartum. Little evidence exists to describe the influence of a range of structural and personal factors on maternal postpartum employment, in particular the role of the mother-infant attachment relationship and maternal separation anxiety. Similarly, while it is now established that maternal mental health is multi-factorially governed, including by social circumstances, the role of employment characteristics and conditions has remained under-investigated.

The first primary aim of this study was to identify which of a broad range of factors, including maternal preferences, maternal separation anxiety and access to maternity entitlements, contributed to maternal employment participation in the first ten months postpartum. The second primary study aim was to identify the relative contribution of women's satisfaction with their postpartum employment arrangements to their psychological well-being when known risk factors for worse maternal mood were included in analyses.

A prospective, cohort study was designed. Participants were employed pregnant women receiving care in one public and one private maternity hospital, over 18 years of age and with sufficient English for completion of study materials. Consecutive cohorts of pregnant women were recruited in the third trimester of pregnancy, and data were collected during pregnancy and at three and ten months following birth. Information was collected about a range of maternal and employment characteristics and standardised assessments of maternal mood and well-being, mother-infant attachment, and maternal separation anxiety were used. One hundred and sixty-five women were recruited into the study and 78% of these provided complete study data. Participants were broadly representative of employed, nulliparous, pregnant women giving birth in Victoria, Australia, comparable in age, marital status, and health insurance status.

Binary logistic regression conducted on the primary outcome of employment participation at ten months postpartum revealed that maternal preference for employment, and not or no longer breastfeeding were associated with significantly increased likelihood of women resuming postpartum employment when maternal age, educational attainment and occupational status were controlled for. In addition, lower maternal separation anxiety was consistently, uniquely associated with employment participation, and further analyses revealed that participants reporting lower separation anxiety also reported a less affectionate attachment to their infant.

A constellation of adverse employment conditions made independent contributions to measurably worse maternal mood including experiencing sexual discrimination in pregnancy, no maternity entitlements, and maternal dissatisfaction with employment arrangements when known determinants of poorer maternal well-being were controlled in regression analyses. Less affectionate, lower quality maternal-to-infant attachment also independently contributed to more depressive symptoms in the postpartum.

Maternal employment decisions are complex, and the developing mother-infant relationship is a highly relevant, but previously ignored aspect of women's postpartum employment decisions. These results support the policy provision of adequate paid maternity leave to protect women's opportunity to develop a confident, warm and secure attachment to their infant, from which to negotiate appropriate regular separation, prior to having this process interrupted by employment resumption too soon in the postpartum.

Study findings also contribute evidence about a previously ignored social determinant of perinatal mental health, that of employment characteristics. Adverse employment conditions and lower maternal satisfaction with employment arrangements were consistently associated with worse mood and poorer well-being in this representative sample. Substantial evidence about the role of policy, social and personal circumstances to pregnancy and postpartum mental health, when established risk factors for poorer maternal mood are included, is provided by the study findings.

## DECLARATION

This is to certify that

- i. *the thesis comprises only my original work towards the PhD,*
- ii. *due acknowledgement has been made in the text to all other material used,*
- iii. *the thesis is less than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices*

Signed ..... Date .....

Amanda Ruth Cooklin

## **PUBLICATION OF STUDY RESULTS**

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# **CHAPTER 1 AUSTRALIAN WOMEN'S EMPLOYMENT IN PREGNANCY AND AFTER CHILDBIRTH**

Rapid social and demographic change over the latter half of the twentieth century has culminated in a dramatic change to the social context in which women give birth. Women's increasing participation in the paid workforce has meant that it is now common for women in Australia, as in other comparable industrialised settings, to combine the work of mothering with participation in the paid workforce. For many women, this begins within a few months of giving birth. The family, social and political context in which women negotiate the demands of these often competing activities is shaped for all mothers by a broad range of influences, including public policy, structural and employment characteristics, and culturally defined, gendered, social norms and attitudes about motherhood. For women having a first baby, the negotiation of paid work, in combination with a vastly increased unpaid workload and the care of a new infant, is addressed for the first time. The established retention of mothers of infants in the paid workforce in Australia means that it is now possible to investigate the range of factors governing mothers' postpartum employment participation, and to understand the manner in which employment participation is relevant to women's mental health as they broach the psychological adjustment necessitated by new motherhood.

The increase in women's workforce participation in Australia and in other Organization for Economic Co-operation and Development (OECD) countries over the last 25 years has been well-documented (Australian Bureau of Statistics, 2006c; Evans & Kelley, 2004; Gray, Qu, de Vaus, & Millward, 2002c; House Standing Committee on Family and Human Services, 2006; Pocock, 2003). The proportion of all Australian women over 15 years of age in paid employment increased from 40% in

1979 to a current rate of 58% (Australian Bureau of Statistics, 2006c). Several explanations have been tendered for this marked rise in women's employment over a single generation, including policy changes such as the removal of the prohibition on married women participating in paid work (Evans & Kelley, 2004); affirmative action and equal pay (Summers, 2003, p. 122); increased educational attainment (Evans & Kelley, 2004); declining fertility rates (McDonald, 2000); changes in societal attitudes to mothers combining work and motherhood (Evans & Kelley, 2002) and women's preferences to earn independent incomes and occupy equal social positions to men (Campbell & Charlesworth, 2004; Human Rights and Equal Opportunity Commission, 1999).

A substantial part of this increase in women's labour force participation has been the retention in the labour force of sub-groups of women with historically low levels of employment, in particular mothers of young children (I. Campbell & Charlesworth, 2004; M. Gray & Stanton, 2002a). The participation of Australian mothers of children under 15 years of age has increased from less than 50% in 1987, to nearly 60% in 2006 (Australian Bureau of Statistics, 2006c). Each successive cohort of Australian women has higher employment, (Campbell & Charlesworth, 2004), and fewer women than in previous generations are leaving the workforce permanently following childbearing (Pocock, 2003, p. 72). In spite of this overall increase in maternal workforce participation however, one of the strongest constraints on Australian women's employment remains their provision of care for young children.

The availability of large-scale national data sets makes it possible to describe broad trends in women's employment over the life-course, including throughout the childbearing years. Australian women's employment participation over the life course has been characterised as "two peaks, separated by a trough around child-rearing age" (Campbell & Charlesworth, 2004, p. 6; Gray & McDonald, 2002). Currently in Australia, 70% of women between 25 and 34 years of age participate in the labour force, at an age when they are most likely to begin their childbearing (Australian Bureau of Statistics, 2003). Only 45% of mothers with a child under six years of age are employed. This rate gradually increases, as the youngest child grows older, to the

60% participation of all mothers with dependent children of less than 15 years of age (Australian Bureau of Statistics, 2003). The employment participation of Australian mothers with children under six years of age is low compared with other OECD countries for example 55% in the United Kingdom, 61% in the United States, 66% in the Netherlands and 74% in Denmark (OECD, 2003).

The most common family type in Australia is a couple and their dependent children in which both parents are employed, one full-time or for more than 35 hours per week and one part-time, at less than 35 hours per week (Australian Bureau of Statistics, 2003). Maternal, but not paternal, employment is strongly related to the age of the youngest child (Baxter, Gray, Alexander, Strazdins, & Bittman, 2007; Gray et al., 2002c). In addition, employed women with young children are more likely to be working part-time when compared with fathers, or people who are not parents (Australian Bureau of Statistics, 2006c; Evans & Kelley, 2004; Gray, 2001). Unpartnered mothers are significantly less likely to participate in paid employment than partnered mothers (Gray et al., 2002c). It is therefore predominantly mothers, not fathers, who move in and out of the workforce, or decrease their working hours, in order to combine employment with the unpaid work of caring for young children and domestic labour (Australian Bureau of Statistics, 1999; Bittman, 1998). Conversely, fathers of young children are likely to be working a greater number of hours than any other age cohort of men (Human Rights and Equal Opportunity Commission, 2005).

Commonly, employed mothers with a preschool- aged child (less than five years old) work part-time (31%). Only 14% of mothers with a pre-school aged child are employed full-time (Australian Bureau of Statistics, 2006c). Part-time employment of mothers is often cited in the literature as a means through which women achieve the “work-family” balance, a way of combining the often competing demands of paid and unpaid labour (Evans & Kelley, 2001; Morehead, 2005). In reality however, casual or part-time employment is of lower status, is less secure and has fewer workplace entitlements (Gray, 2001; Pocock, 2003, p. 160; Pocock & Masterman-Smith, 2005).

There has been vigorous recent debate both in Australia and internationally, based on both empirical evidence and opinion, as to whether or not mothers’ lower workforce

participation relative to fathers reflects personal preference for reduced labour force participation following childbearing (Hakim, 1991, 2000, 2002; Probert & Murphy, 2001). Other authors have argued rather that this is evidence of the constraints placed inequitably on women by unpaid domestic work, insufficient workplace entitlements, social expectations regarding the appropriate role of mothers, and by the lack of access to affordable and suitable childcare (Crompton & Harris, 1998a; Ginn et al., 1996; Himmelweit & Sigala, 2004; Houston & Marks, 2003; Manne, 2001; McRae, 2003; Probert, 2002). It has also been argued that Australian mothers' relatively low rates of workforce participation compared with other countries suggest inadequate workplace and childcare policy and inadequate government financial support for mothers wanting to combine both paid and unpaid labour (McDonald, 2001; Pocock, 2003, p. 223; Probert, 2002; Samson, 2002; Summers, 2003, pp. 143-171).

One life stage at which these various competing demands are most notable is across the transition to motherhood, particularly for women negotiating this transition for the first time. Employment in pregnancy and following birth is characterised by particular circumstances that are unique to this life stage, including the availability of paid and unpaid maternity-leave entitlements, the presence of pregnancy-related sexual discrimination, and the availability of flexible workplace arrangements that facilitate the combination of paid work and infant care. In addition, it is likely women's employment participation is also influenced by the availability of non-parental childcare, and the large increase in the unpaid workload that accompanies the birth of an infant.

## **1.1 EMPLOYMENT DURING PREGNANCY AND FOLLOWING CHILDBIRTH**

In Australia, the average age at first birth has increased steadily from 25.8 years in 1991 to 28.0 years in 2004, and a growing proportion of first births are to women aged over 30 years (Laws & Hilder, 2008). Many women have therefore had the opportunity to participate in employment for a decade or more prior to the birth of their first child.



Three recent national Australian studies have, for the first time, made it possible to describe the employment patterns of mothers during pregnancy and following childbirth. These studies have been summarised in Table 1.1.

**Table 1.1 Australian studies investigating maternal employment in pregnancy and following birth**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main findings</b>
(Baxter, 2005a)	Sub-sample of 799 mothers, aged 18-54 from Negotiating the Life Course Survey, random population sample recruited from telephone directory, wave 1 in 1996	Retrospective survey of employment history and childbirth for each year since respondent was aged 15 to present	Telephone survey	<ul style="list-style-type: none"> <li>•80% of women employed when pregnant with first baby</li> <li>•Primiparous women resume sooner than multiparous women</li> <li>•Women with higher education resume sooner</li> </ul>
(Australian Bureau of Statistics, 2006d)  PaETS*	National representative sample of > 400,000 birth mothers with a child <2 years of age, nested within ABS monthly population survey	Cross-sectional survey to describe employment in pregnancy, maternity leave, and postnatal employment participation	Telephone survey	<ul style="list-style-type: none"> <li>•64% of all women employed in pregnancy</li> <li>•68% of women expecting first baby employed full-time</li> <li>•22% experienced “workplace difficulties” during pregnancy</li> <li>•40% resume employment in postpartum year, 45% of those part-time &lt;35 hrs / week</li> </ul>
(Whitehouse, Hosking, & Baird, 2008)  PLAS**	Random representative cohort of 3573 Australian families with a child born 2003-2004, mean 15 months at data collection	Nested study of infant cohort of Longitudinal Study of Australian Children. Investigating the taking of parental leave in Australia	Postal self-report questionnaire	<ul style="list-style-type: none"> <li>•69% of women employed in pregnancy</li> <li>•73% of pregnancy women employed full-time expecting first infant</li> <li>•44% resume in first postpartum year, 45% of these &lt;35 hrs / week, 38% &lt;15 hours per week</li> </ul>

\*Pregnancy and Employment Transitions Survey

\*\*Parental Leave in Australia Study

The *Pregnancy and Employment Transitions Survey* (PaETS), conducted by the Australian Bureau of Statistics (ABS) in 2005, collected information by telephone survey from a representative national cohort of over 400,000 mothers. The survey

included birth mothers over 15 years of age, who were living with at least one child of less than two years of age, although excluded mothers who were living in non-private dwellings, or in remote areas (Australian Bureau of Statistics, 2006d). The PaETS investigated employment participation of mothers prior to and following the index birth, although postnatal employment from mothers who had a very recent birth was not obtained.

In the same year, *The Parental Leave in Australia Survey* (PLAS) (Whitehouse, Baird, Diamond, & Hosking, 2006c; Whitehouse et al., 2008) was conducted as a nested survey within the *Growing up Australia: Longitudinal Study of Australian Children* (LSAC). The LSAC is an ongoing longitudinal study of Australian children's growth and development covering several domains including physical health, social, cognitive and emotional development, child care, education and familial and social environment. LSAC was initiated and funded by Australian Government Department of Family and Community Services. The study children were selected randomly from the Health Insurance Commission's Medicare database – currently the most comprehensive database of Australia's population. All families with a child born between March 2003 and February 2004 (infant cohort) or between March 1999 and February 2000 (four to five year old cohort) were eligible. The final sample of over 5,000 children in each cohort is broadly representative of all Australian children, and for almost all characteristics, the sample distribution is only marginally different to the Census distribution (Department of Family and Community Services, 2004; Soloff, Lawrence, & Johnstone, 2005).

The PLAS was a postal survey sent to the entire LSAC infant cohort at a minimum age of 15 months after the birth. The response for the PLAS questionnaire was 70.6 per cent (n= 3,573). Respondents to this nested survey were similar to the overall sample in the LSAC, although significantly more likely to have obtained post-school qualification, and to be earning a higher income than non-respondents. The PLAS aim was to investigate the taking of parental leave in Australia.

Baxter (2005a, 2005b) analysed data collected in the first wave of the national *Negotiating the Life Course Survey* (NLC) to examine women's employment

transitions during childbearing. The NLC was a longitudinal, repeat-wave telephone survey of a random sample of more than 2200 Australian adults, selected from the electronic White Pages, aged between 18 and 54 years (Breusch & Gray, 2005). Women with one or more children in the 1996 and 2000 waves were included in Baxter's analysis, leaving a sample of 799 women. The survey collected retrospective work histories, including transitions in and out of the paid workforce, for each year from when the respondent was fifteen years of age, until the survey date. Birth years of children were recorded, so that employment transitions before and after childbirth could be ascertained for that year.

### **1.1.1 Employment during Pregnancy**

The PLAS reports that 69% of mothers in the LSAC infant cohort were employed during their pregnancy, and the ABS found slightly lower rates of pregnancy employment – 64% (Australian Bureau of Statistics, 2006d). It is notable however, that in both surveys, the study child was not necessarily a first child. In PLAS, for example, 60% of respondents had more than one child (Department of Family and Community Services, 2004; Whitehouse et al., 2008). It is likely however, that the employment of nulliparous pregnant women is higher than multiparous women as their employment is not yet interrupted and constrained by the presence of children. Baxter (2005a; 2005b) estimates that 80% of Australian women are employed prior to their first birth.

The majority of employed mothers are employed on a full-time basis during their first pregnancy. Seventy-three per cent of PLAS nulliparous mothers and 68% of nulliparous mothers in the PaETS were in full-time employment during their pregnancy, compared with 28% of multigravid mothers in both studies (Australian Bureau of Statistics, 2006d; Whitehouse et al., 2008). Women expecting their first child are more likely to be in permanent ongoing, non-casual positions than mothers having a subsequent baby, and over 70% are employed for more than thirty-five hours each week (Whitehouse et al., 2006c). In the ABS PaETS survey, mothers were asked about any changes in their employment hours during their pregnancy. While the majority of mothers' working hours remained unchanged, 14% of women reported

that they reduced their hours of employment during their pregnancy (Australian Bureau of Statistics, 2006d).

The best evidence available describing nulliparous women's prenatal employment relies on retrospective data collection of pregnancy and postnatal employment events. There is a lack of prospective evidence describing women's employment during pregnancy and subsequent postnatal labour force participation.

#### **1.1.1.1 Pregnancy-Related Sexual Discrimination**

According to the *Commonwealth Sex Discrimination Act (SDA)*, direct discrimination on the grounds of pregnancy or potential pregnancy occurs when

..a person treats a pregnant or potentially pregnant woman less favorably than, in circumstances that are the same or not materially different, that person treats or would treat someone who is not pregnant or potentially pregnant...(Human Rights and Equal Opportunity Commission, 1999)p. 36.

“Potentially pregnant” refers to women perceived to be of childbearing age, likely to become pregnant or expressing a desire to become pregnant. Discrimination on the grounds of potential pregnancy most frequently arises when employers fail to recruit or promote women who are of childbearing age (Human Rights and Equal Opportunity Commission, 1999). Two recent Australian studies have examined this in detail, and they are summarised in Table 1.2.

**Table 1.2 Studies investigating pregnancy-related workplace discrimination**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Human Rights and Equal Opportunity Commission, 1999)	Inquiry process: consultations with key stakeholder (industry, business and women's organisations), focus group discussions and individual submissions	To investigate the nature and prevalence of sexual-discrimination in pregnancy in Australian workplaces		<ul style="list-style-type: none"> <li>• 17% of all complaints to HREOC pertained to pregnancy-based discrimination</li> <li>• Under-reporting is common, so this is an under-estimate</li> <li>• Established guidelines for workplace, and recommended future research</li> </ul>
(Charlesworth & MacDonald, 2007)	<ol style="list-style-type: none"> <li>1. Audit of complaints to relevant services in Victoria, &gt;1700.</li> <li>2. Sub-sample of 13 women who had experienced workplace discrimination</li> </ol>	To investigated the nature of difficulties experienced by Victorian women before, during and after pregnancy, within context of <i>WorkChoices</i> legislation	<ol style="list-style-type: none"> <li>1. Audit of complaints to HREOC, VREOC, JobWatch, Workers Rights Info. Line</li> <li>2. 13 in-depth interviews</li> </ol>	<ul style="list-style-type: none"> <li>• Increase in inquiries to HREOC between 2005/6 to 2006/7, probably under-reporting</li> <li>• Discrimination and harassment most common issues reported in pregnancy</li> <li>• Full-time employees, in high status occupations over-represented in complaint / inquiries</li> </ul>

In 1999, the Human Rights and Equal Opportunity Commission (HREOC) undertook a National Inquiry into Pregnancy and Work, after noting that in 1997 nearly 15% of all complaints accepted under the *Commonwealth Sex Discrimination Act 1984* (SDA) included an allegation of discrimination on the grounds of pregnancy. By the time of the Inquiry, this figure had increased to 17% (Human Rights and Equal Opportunity Commission, 1999). Charlesworth and McDonald (2007) followed up this Inquiry in 2007, analysing the frequency and nature of complaints made to employee information and advocacy services, including HREOC, subsequent to the introduction of changes to the *Commonwealth Workplace Relations Act* (1996), known as *Workchoice*, since removed by the current federal government elected in late 2007. *Workchoices* enacted broad industrial relations amendments, reducing collective bargaining, emphasising individual negotiation and enforcing a lower minimum

standard (Pocock & Masterman-Smith, 2005). These changes were predicted to have a strong negative effect on female employees who are more likely to be disadvantaged in individual workplace agreements in Australian workplaces, but who typically require greater access to flexibility and family-related entitlements (Ellem, Baird, Cooper, & Lansbury, 2005; Pocock & Masterman-Smith, 2005). Charlesworth and McDonald (2007) reported that complaints made to HREOC increased by 30% from 2005/6 to 2006/7, the period in which *Workchoices* was introduced, notable as there had not been an increase in the year prior to the introduction of these changes to industrial legislation.

The most common types of incidents reported to HREOC in 2006/7 were termination of employment once the pregnancy was revealed, including redundancy or failure to renew a contract, and discrimination or harassment such as abusive remarks, not being provided access to sick leave, unpaid maternity leave or time off for medical appointments, having hours or shifts reduced and not accommodating the physical constraints of pregnancy (Charlesworth & MacDonald, 2007). Charlesworth and McDonald also reported that there was an over-representation, in their complaint and inquiry summary data, of women who were employed full-time, in large organisations, in managerial, and professional occupations, compared to all Victorian women aged 25-34 years. This is probably because women of socio-economic advantage are more likely to seek advice and pursue a complaint about their discriminatory treatment, rather than because they suffer disproportionately more discrimination.

Sex-discrimination complaints are often managed informally, within organisations or by private mediators, trade unions or law firms, and are therefore not routinely registered with HREOC (Human Rights and Equal Opportunity Commission, 1999). Further, ignorance of employee rights, fear of victimisation, and a financial need to maximise employment opportunities in pregnancy contribute to women's reluctance to pursue a complaint through formal processes. In a submission to the Inquiry, the Women's Legal Services Network notes that there are obvious practical and emotional difficulties in pursuing legal action when pregnant or caring for a young

baby (Human Rights and Equal Opportunity Commission, 1999, p. 22). The report of HREOC's Inquiry into Pregnancy and Work concluded that the existing data pertaining to workplace discrimination in pregnancy were an under-representation of the extent of pregnancy discrimination (Human Rights and Equal Opportunity Commission, 1999).

In the ABS PaETS, employed participants were asked to report whether they had experienced any difficulties in the workplace during their most recent pregnancy. Twenty-two percent of participants reported at least one difficulty in the workplace during pregnancy. The most common difficulties reported were receiving negative comments and being overlooked for training, development opportunities and promotion (Australian Bureau of Statistics, 2006d). It is unclear from these data whether these difficulties were directly associated with the pregnancy. However, these numbers are similar to those reported by HREOC above, and it is likely that, given that discrimination is commonly under-reported, varied forms of pregnancy-based discrimination in the workplace are prevalent.

### **1.1.2 Employment in the First Twelve Months following Childbirth**

Until recently the ABS has reported only aggregated data about employment of mothers with children aged from infancy to 5 years of age. These data do not accurately reflect the large variations in employment participation between mothers of infants and mothers of older pre-school children, or differences between primiparous and multiparous mothers. Recent data from the PaETS and PLAS has made it possible to describe women's employment participation for each year following the birth of a child.

Currently, approximately forty per cent of Australian mothers resume employment in the first twelve months following childbirth (Australian Bureau of Statistics, 2006d; Baxter, 2008a; Department of Family and Community Services, 2004). The participation of partnered mothers of a youngest child between 1-2 years is 53% and this rises to 68% for mothers whose youngest child is 3-4 years of age (Department of Family and Community Services, 2004). Un-partnered mothers follow the same resumption pattern, but at a lower rate (Australian Bureau of Statistics, 2003; Baxter,

Gray, Alexander et al., 2007; Gray & Stanton, 2002a). Predominantly, mothers resume employment in the year following childbirth on a part-time basis, 45% per cent for less than 35 hours a week (Australian Bureau of Statistics, 2006d; Baxter, Gray, Alexander et al., 2007), and 38% of them are employed for less than 15 hours each week (Department of Family and Community Services, 2004).

There is also evidence to suggest that when resuming employment following the birth of a baby, a number of women undergo significant changes in job characteristics. One in six women resigns from their employment at the time of the birth (Australian Bureau of Statistics, 2006d; Whitehouse et al., 2006c). It is not yet understood whether this reflects a choice, or demonstrates inadequate access to entitlements or that their job is no longer available. The PLAS found that 66% of employed women resume employment with the same employer at the same job in the first 15 months following the birth, 17% resume in the same workplace but in a different capacity, and a further 9% seek a different employer. Seven per cent of women remain self-employed, and a small proportion of women (2%) move into self-employment following the birth. Seventy percent of women employed full-time prior to the birth resume in a part-time capacity, and almost all (98%) mothers working part-time prior to the birth remain in part-time employment (Whitehouse et al., 2006c).

This suggests that job changes and job insecurity are a feature of the transition to parenthood for employed Australian women. Notably, one in four women in the PLAS reported that they perceived their career opportunities to be worse following the resumption of employment after the birth, compared to before having a baby (Whitehouse, Baird, & Diamond, 2006b). Access to maternity leave is likely to be a means through which women retain their connection to the paid labour force across the transition to parenthood.

### **1.1.3 Maternity Leave and Workplace Entitlements**

Currently in Australia, there is legislative provision for unpaid parental leave. Under the *Workplace Relations Act 1996* (Commonwealth) all full-time and permanent employees are entitled to a minimum of 52 weeks of unpaid parental leave after twelve months of continuous service with the same employer. In 2001, this was



extended to casual employees, although only to those employed under federal workplace awards, who had been employed by the same employer continuously for at least 12 months (Baird, Brennan, & Cutcher, 2002). This legislation protects employees' right to return to the same or similar position once unpaid leave has ended, but does not include a provision for employees to be given reduced hours of employment or flexible working arrangements upon resumption of employment (Human Rights and Equal Opportunity Commission, 2002b).

Only two OECD countries, Australia and United States of America, have no statutory provision for paid maternity leave, although a national, government funded paid maternity leave scheme was announced in the Australian federal budget in May 2009, to begin in 2011 (Department of Education Employment and Industrial Relations, 2009). By comparison, women in France, Denmark and Sweden are entitled to 73, 42 and 40 weeks of parental leave respectively, paid at income replacement level, provided by national legislation (Jaumotte, 2004).

Until very recently, there was a paucity of data about how women arranged and accessed maternity entitlements and other leave in preparation for their baby's birth. The only existing survey of Australian employed mothers' entitlements was conducted in 1987 (Glezer, 1988), and is not relevant to contemporary policy and employment contexts. Other estimates of leave availability were derived from surveys in individual workplaces (Australian Bureau of Statistics, 2000) or on the provision of leave in industrial awards (Baird, 2005; Whitehouse, 2001). However, data about availability of leave at the sector or industry level does not yield information about individual employees' access to, and eligibility for, maternity leave entitlements (Whitehouse & Soloff, 2005).

In 2002, HREOC released *A Time to Value: Proposal for a National Paid Maternity Leave Scheme* (Human Rights and Equal Opportunity Commission, 2002a) a report based on the findings from an interim paper, *Valuing Parenthood: Options for Paid Maternity Leave* (Human Rights and Equal Opportunity Commission, 2002b). HREOC highlighted the necessity for future research to investigate employees' access to and uptake of paid and unpaid maternity leave.

### 1.1.3.1 Unpaid Maternity Leave

Studies investigating Australian women's access to unpaid maternity leave are summarised in Table 1.3.

**Table 1.3 Australian studies describing access to unpaid maternity leave**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Fisher, 2002)	Subsample of national probability sample of adults aged 18-55 sampled by household. Inclusion for this study if in couple, between 25-39 years, N>2000.	Secondary analysis of national survey data investigating the effect of labour force and income factors on fertility decision making	Survey specific items	<ul style="list-style-type: none"> <li>• For this subsample, of partnered, employed women, aged 25-39, 82% of women reported that they would have access to unpaid maternity leave</li> </ul>
(Baird & Litwin, 2005)	Nationwide sample of 1032 employed adults, aged >15 yrs	Survey investigating employees access to and knowledge of unpaid maternity leave		<ul style="list-style-type: none"> <li>• 27% of respondents took unpaid maternity leave for their youngest child</li> </ul>
(Whitehouse, 2005a)	Random population survey of >2200 adults, aged 18-54 randomly selected from electronic white pages. Repeated waves in 1996 and 2000.	How do perceptions of access to parental leave align with formal entitlements?	Study specific items about perceived availability of parental leave provisions	<ul style="list-style-type: none"> <li>• 55% in 1996 and 59% in 2000 reported that unpaid maternity leave would be available to them</li> <li>• perception of access to unpaid leave higher in public (70%) than private sector (49%).</li> </ul>
(Whitehouse et al., 2006c)  PLAS*	Random representative cohort of 3573 Australian families with a child born 2003-2004, mean 15 months at data collection	Nested study of infant cohort of Longitudinal Study of Australian Children. Investigating the taking of parental leave in Australia	Postal self-report questionnaire	<ul style="list-style-type: none"> <li>• 57% of women took unpaid maternity leave</li> </ul>

\*Parental Leave in Australia Survey

The PLAS (Whitehouse et al., 2006c) found that approximately 57% of Australian mothers took unpaid maternity leave. Baird and Litwin reported a low proportion of 27% accessing unpaid maternity leave for their youngest child in a nationwide survey of employed adults, but this sample included men, who are less likely to take parental

leave than women (Baird & Litwin, 2005). Fisher (2002) reported higher access, (82%). Some of this discrepancy between the universal provision of unpaid maternity leave, and actual reported uptake might be explained by the number of employees – as many as one third – who are not eligible for statutory unpaid maternity leave, due to less than twelve months continuous employment (Whitehouse et al., 2006c). It is difficult to assess the proportion of employed women eligible for the basic Australian provision of unpaid maternity leave, due to the differing eligibility of fixed-term contractual employees, of employees who have been made redundant, of those not employed for twelve months continuously prior to the birth and of casual employees not eligible under their particular workplace industrial award (Whitehouse et al., 2006c).

There is also evidence to suggest that employees' awareness of the availability of unpaid maternity leave remains very poor. Whitehouse (Whitehouse, 2005a), using data from *Negotiating the Life Course* (Breusch & Gray, 2005), found that 30% of government employees perceived that they would not have access to unpaid maternity leave, and there was even greater perceived lack of access in the private sector (51%). A national retrospective survey conducted by telephone in 2002 of over 1000 employees, weighted to represent all Australian employees over 15 year of age, found that unpaid maternity leave is very rarely used, even by employed women who were entitled to it (Baird & Litwin, 2005). The authors conclude that many women cannot afford to take unpaid leave in the absence of any paid entitlement, and that the provision of unpaid maternity leave is little more than rhetoric if it is not widely known about, not commonly used and provision of this entitlement is not monitored.

### **1.1.3.2 Paid Maternity Leave**

Australian studies investigating access to paid maternity leave entitlements are summarised in Table 1.4.

**Table 1.4 Australian studies describing access to paid maternity leave**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main findings</b>
(Baird et al., 2002)	Data drawn from Workplace Agreements Database from Dept. of Employment / IR, and Agreement Database and Monitor	Examine presence of paid maternity leave in federal and state industrial awards and enterprise bargaining agreements		<ul style="list-style-type: none"> <li>• 5% of enterprise agreements provided paid maternity leave</li> <li>• Length of paid entitlements range from 0.2 weeks to 18 weeks, most commonly 2 weeks</li> <li>• Variation across sectors and between state and federal provisions</li> <li>• Fewer than one third of employees provided leave under their award.</li> </ul>
(Whitehouse, 2005a)	Random population survey of >2200 adults, aged 18-54 randomly selected from electronic white pages. Repeated waves in 1996 and 2000.	How do perceptions of access to parental leave align with formal entitlements?	Study specific items about perceived availability of parental leave provisions	<ul style="list-style-type: none"> <li>• 60% of respondents agreed that paid maternity leave was available at their workplace</li> <li>• Paid maternity leave inequitably provided, concentrated in public sector, and unionised workplaces.</li> </ul>
(Australian Bureau of Statistics, 2006d)  PaETS*	National representative sample of birth mothers with a child <2 years of age, n=400,000	Survey to describe employment in pregnancy, maternity leave, and postnatal employment participation	Telephone survey	<ul style="list-style-type: none"> <li>• 34% of women accessed paid maternity leave</li> <li>• 56% of professional accessed paid maternity leave, 8% of clerical workers</li> <li>• paid maternity leave more prevalent in public sector (76%) than private (25%)</li> </ul>
(Whitehouse et al., 2006b)  PLAS	Random representative cohort of 3573 Australian families with a child born 2003-2004, mean 15 months at data collection	Nested study of infant cohort of Longitudinal Study of Australian Children. Investigating the taking of parental leave in Australia	Postal self-report questionnaire	<ul style="list-style-type: none"> <li>• 30% of mothers accessed some paid maternity leave, only 4% used this leave as their total leave provision</li> <li>• Public sector employees, and those in large workplaces &gt; 500, in high status occupations more likely to used paid maternity leave</li> </ul>

Most Australian public sector employees are covered by provisions for paid maternity leave, but in other sectors it is usually made available through collective enterprise

bargaining or by negotiation between employer and employee (Baird, 2003; Whitehouse, 2005b). Only one third of Australian women are currently eligible for paid maternity leave under these forms of agreement (Australian Bureau of Statistics, 2006d; Whitehouse, 2005b, 2006a). Only a small proportion of women (4%) rely solely on paid maternity leave for their absence from the workforce following childbirth, probably because the mean duration of paid maternity leave is currently only 11 weeks (Whitehouse et al., 2006c). This duration falls short of that recommended by the International Labour Organization (ILO) of a minimum provision of 14 weeks of paid leave (International Labour Organization, 2000), and the average length of statutory paid parental leave internationally of 26 weeks (Jaumotte, 2004).

Existing evidence from the large-scale PaETS and PLAS and smaller workplace surveys have found consistently that the availability of paid maternity leave is limited, highly inequitably provided and varies both within and between workplaces, and across sectors and industries (Australian Bureau of Statistics, 2000, 2006d; Baird et al., 2002; M. Gray & Tudball, 2002b). The provision of paid maternity leave is disproportionately concentrated in higher-status, full-time occupations (Whitehouse et al., 2006b); 56% of mothers employed in professional occupations took paid maternity leave in 2005, while only 8% of mothers working in clerical, service and sales occupations did so (Australian Bureau of Statistics, 2000). Women employed in the public sector, or in organisations of over 100 employees were more likely to take paid maternity leave for the birth than women in workplaces employing fewer than 10 people (Australian Bureau of Statistics, 2006d; Whitehouse, 2005b; Whitehouse et al., 2006b). Like unpaid leave, paid maternity leave is predominantly available to those women who have been employed in one organisation for more than a year (Australian Bureau of Statistics, 2006d).

Of the employed respondents in the PaETS, half of those who had not taken paid maternity leave for their most recent birth stated that it was not available to them, or not offered by their employer at all (Australian Bureau of Statistics, 2006d). Currently, paid maternity leave exists as a “limited privilege rather than a universal

right” (Whitehouse, 2005b, p. 25). Mothers of young children are disproportionately concentrated in low-waged, part-time or casual occupations, particularly during the childbearing years. Conversely, the provision of paid maternity leave is concentrated in high-status, full-time occupations. Mothers of young children are most likely of all employees to utilise this leave provision, yet they are the least likely to have paid leave available to them (Gray, 2001; Whitehouse, 2005a, 2005b).

The PLAS and the PaETS found that the most common arrangement used by contemporary Australian women is to combine their unpaid maternity entitlement with some other form of leave. About one quarter of employed women take only unpaid maternity leave after their baby’s birth, but nearly 50% take it combined with either paid maternity leave, annual leave, sick leave, long-service leave or a combination of these (Whitehouse, 2006a). Similarly, of those women able to access paid maternity leave, most (30%) combine it with other forms of leave, such as unpaid maternity leave, to supplement the short duration of paid leave available. A further 13% of women use only non-maternity entitlements such as sick leave, annual and long service leave to provide some income after childbirth (Australian Bureau of Statistics, 2006d), and it is likely that they do so because a paid maternity entitlement is not available. Eighteen per cent of women able to access paid maternity leave do so at half-pay, in order to extend the duration of paid leave available (Whitehouse et al., 2006c). This recent evidence suggests that in the absence of universal paid maternity leave and a lack of rigorous monitoring of the provision of unpaid leave, there is currently a complex pattern of leave-taking amongst Australian women around the birth of a child.

### **1.1.3.3 “Family-friendly” Workplace Entitlements**

Paid and unpaid maternity leave are Australian workplace initiatives which aim to ameliorate some of the difficulties for employees who have concurrent unpaid caring responsibilities. These initiatives are collectively termed “family-friendly” policies, and include provisions for family-related leave including maternity leave, and provision for flexible working hours, job-sharing, working from home and permanent part-time employment (Gray & Hughes, 2005; Whitehouse & Zetlin, 1999).

It is estimated that over 70% of employed Australian women with a child under 12 years of age use a form of flexible working arrangement in order to care for children (Australian Bureau of Statistics, 2002; Gray & Hughes, 2005). The most common arrangements women use are flexible working hours (43%), followed by permanent part-time work (35%) (Australian Bureau of Statistics, 2002). A much smaller proportion of employed men than women utilise family-friendly arrangements to provide care for their children (30%), and this provides evidence that employed women retain the major responsibility for unpaid work, and organise their paid employment around their caring responsibilities to a much greater degree than men do (Bittman, 1995a; Burgess & Strachan, 2005; Wolcott & Glezer, 1995).

Similar to maternity leave, provision for flexible working hours and permanent part-time employment is more likely to be available to professionals, managers and administrators. The Australian Workplace Industrial Relations Survey (AWIRS), a survey of a representative sample of nearly 2000 Australian workplaces conducted in 2005, found that employees with young children are no more likely to be able to access family-friendly arrangements than employees without caring responsibilities (Gray & Tudball, 2002b), suggesting that conditions supporting mothers' workforce participation are piecemeal and limited (Burgess & Strachan, 2005). Responsibility for providing these conditions rests with the individual employer, in company policies and within industrial agreements, and is therefore vulnerable to discretionary application by the employer. Consequently, the delivery of family-friendly arrangements is uneven, highly variable and predominantly confined to the public sector (Burgess & Strachan, 2005; Whitehouse & Zetlin, 1999).

#### **1.1.4 Childcare Use and Paid Employment**

The use of non-parental childcare has increased alongside mothers' employment participation, and currently 43% of all Australian children aged 0-12 experience some form of non-parental care (Australian Bureau of Statistics, 2009). Studies reporting the use of non-parental childcare in Australia are summarised in Table 1.5.

**Table 1.5 Australian studies describing use of non-parental childcare**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main findings</b>
(Tesfaghiorghis, 2004)	Subsample of national probability sample of adults aged 18-55 sampled by household, 2001, included if resident child <15 years, n>2,000,000.	Cross-sectional survey of balance between employment and family for contemporary cohort of women with dependent child aged less than 15years	Telephone survey	Characteristics of women most likely to use childcare: <ul style="list-style-type: none"> <li>• Employed (cf. not emp.)</li> <li>• single (cf. partnered)</li> <li>• Postgraduate qualifications (cf. no school completion)</li> </ul>
(Harrison & Ungerer, 2005)	Infant and 4-5 year old cohort from LSAC, representative randomly selected sample of families recruited via Medicare database.	Describe children's time spent in non-parental care in 2004, and demographic factors associated with childcare use.	Interviews with child's parent, parent self-report questionnaire	<ul style="list-style-type: none"> <li>• 34% of infants &lt;one year old spend regular time in non-parental care</li> <li>• Mean start of care use is 5.2 months, for 14 hours per week</li> <li>• 7% of infants in formal care</li> <li>• 22% of parents use more than one regular form of care</li> <li>• Informal care associated with less socio-economic advantage</li> </ul>
(Australian Bureau of Statistics, 2009)	Representative random population sample of Australian adults, >15 nested in monthly Labour Force Survey	Describe and quantify on-parental child care used for children aged 0-12 years		<ul style="list-style-type: none"> <li>• For infants less than one year, 9% of parents use formal childcare, 23% of parents use informal care, 2% use a combination</li> </ul>

The most recent population survey of parental use of child care in Australia is the 2008 ABS Child Care Survey (Australian Bureau of Statistics, 2009). The Child Care Survey was conducted as a series of supplemental questions in the ABS monthly Labour Force survey, and is therefore collected from a representative random sample of Australian parents. Information was collected about arrangements that families made for care of their children aged 0-12 years, other than that provided by a resident parent.



The Child Care Survey found that twenty-two per cent of families with child(ren) under twelve use paid formal childcare. Formal care includes all forms of regulated childcare such as for-profit or community-run childcare in a daycare centre, after-school care provided within primary schools and local council-run family daycare occurring in a registered home-based environment. Use of formal care for infants less than one year of age is comparatively low. Harrison and Ungerer (Harrison & Ungerer, 2005), analysing data from the LSAC infant cohort, found that 7% of Australian parents of infants used regular formal care arrangements in 2005, predominantly in centre-based care settings. In 2008 the ABS reported that 9% of parents used formal care for their infants (Australian Bureau of Statistics, 2009). As employment participation increases with the age of the youngest child, so too does parents' use of non-parental care. Use of formal care increases significantly for each year of age until the child reaches school-age, and then decreases after age five, when most children begin their formal education in primary school (Australian Bureau of Statistics, 2009).

Informal care refers to care given by a friend, relative or babysitter generally in the child's home and either paid for or provided at no cost. Twenty-nine percent of families use regular informal care for children under 12 years of age. Rates of Use of informal care for infants is higher than use of formal care; 23% of infants use informal care, and 2% of infants use a combination of both formal and informal care (Australian Bureau of Statistics, 2005, 2009). Data from LSAC infants found that grandparents perform the majority of informal care, caring for over one third of infants in the LSAC sample on a regular basis (Harrison & Ungerer, 2005), and the ABS found a slightly lower proportion of 22% (Australian Bureau of Statistics, 2006b). In total, 34% of children under one year have some form of regular non-parental care (Australian Bureau of Statistics, 2007; Harrison & Ungerer, 2005), starting at a mean age of 5.2 months, and spending an average of 14 hours per week in non-parental care (Harrison & Ungerer, 2005). Over 20% of all infants less than one year of age experience more than one regular childcare arrangement each week (Bowes et al., 2003; Harrison & Ungerer, 2005).

Some parents, predominantly in couple families, are able to co-ordinate their employment hours, through either shift-work or home-based employment, so that one parent is always available to care for the child(ren) (Venn, 2003). These arrangements are often excluded from studies investigating childcare (Harrison & Ungerer, 2005), and it is currently difficult to estimate the proportion of families able to use mainly parent care when both parents are employed.

Use of non-parental care is associated with several parental characteristics. One-parent families are more likely to use all forms of childcare than couple families (Australian Bureau of Statistics, 2009; Tesfaghiorghis, 2004). Mothers with higher educational qualifications are more likely to use non-parental care than mothers with less education (Tefaghiorghis, 2004). Parents with a higher family income are more likely to use formal, regulated centre-based care, while a greater proportion of families with lower incomes rely on informal care by friends and relatives (Harrison & Ungerer, 2005).

The predominant reason parents report for using both formal and informal childcare is to participate in employment. For example, for all children aged 0-12 years, demographic data obtained from the ABS Child Care Survey found that 75% of parents use childcare during their own paid working hours (Australian Bureau of Statistics, 2009). The Child Care Survey however does not report separate data for parental use of child care for infants less than one year only. Analysis of the LSAC infant cohort by Harrison and Ungerer (2005) found that 72% of infants receive non-parental care for their parents' participation in paid work. Families in which the mother is employed have highest rate of childcare use overall (Tefaghiorghis, 2004), and a higher proportion of mothers employed full-time use childcare than mothers employed on a part-time basis (Australian Bureau of Statistics, 2007). Rates of childcare use therefore vary according to mothers' participation in employment and hours of employment, but not fathers employment characteristics. This suggests that childcare, both formal and informal, is a substitute for maternal care rather than paternal care.

### 1.1.5 Unpaid Labour

The term “work” is usually used to refer to paid employment, or activity which has immediate economic value. The amount of unpaid labour that women perform is largely ignored in investigations of women’s “work” (Fisher, 2009; Smith, 2007). Although there is no internationally accepted definition of unpaid work, the ABS has described unpaid labour as the domestic work of production and reproduction that occurs predominantly in the home and includes shopping and preparing meals, laundry, house-cleaning and home maintenance, household management such as bill-paying and budgeting and the care of and time spent with dependent children (Australian Bureau of Statistics, 1997b, 1999). It is only recently that attempts have been made to quantify unpaid labour in Australia. A summary of these studies is presented in Table 1.6.

**Table 1.6 Studies quantifying mothers’ unpaid labour**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main findings</b>
(Craig, 2002)  Australia	1992 ABS Time Use Survey sub-sample: 2783 parents of children <15yrs and 2615 non-parents, randomly selected.	Cross-sectional comparison of paid and unpaid labour by parents and non-parents	TU Diary record of daily activities	<ul style="list-style-type: none"> <li>• Comparable total daily workload reported in mothers’ in full-time domestic work and those employed full-time</li> <li>• Time cost of parenthood impacts disproportionately on women</li> </ul>
(Fisher, 2002)  Australia	HILDA sub-sample, of 4299 partnered women, randomly selected households, nationally representative	Cross-sectional analysis of relationships between employment and unpaid labour in adults		<ul style="list-style-type: none"> <li>• 67% of women reported that they performed much more than their fair share of housework and childcare per week</li> <li>• 66% of women (vs 14% of men) did 11 hours or more unpaid labour each week</li> </ul>
(Baxter, 2002)  Australia	Three nationally representative cohorts (1986, 1993, 1997) of married / co-habiting adults aged 18-54 with child(ren) <10yrs	Comparison of changes in division of household labour over time		<ul style="list-style-type: none"> <li>• Reduction in overall household work performed from 1987 to 1997</li> <li>• Gender gap decreasing, but due to women reducing hours of unpaid work, not men increasing</li> </ul>
(Gjerdingen & Center,	128 couples recruited through	Prospective study of changes from pre- to	Number of household	<ul style="list-style-type: none"> <li>• Mothers’ total workload increased by 64% -</li> </ul>

2005) USA	prenatal classes in 2 <sup>nd</sup> and 3 <sup>rd</sup> trimester of pregnancy	postpartum time spent on employment and unpaid work. Data collection at recruitment and 6 months postpartum	activities /employment/ and infant care reported, and summed.	including employment, child care and housework • 49 hours per week housework for women, 26 for partners.
(Smith & Ellwood, 2006)  (TUSNM)  Australia	162 pregnant women of mixed parity, recruited by advertisements in health centres, child care centre, and women's service providers	Quantify the change in unpaid workload from pregnancy to postpartum, and to understand the nature of women's unpaid work. Data collected in pregnancy, and 3,6,9 months postpartum.	Self-report demographic questionnaire  Electronic device for coding multiple activities	• Women performed 44 hours per week of childcare activities Increase of 3-4 hours per week of domestic tasks • Reduced 13 hours of sleep and personal care time per week
(Baxter, Hewitt, & Haynes, 2008)  Australia	Randomly selected national sample of 1091 adults, aged 18-54, recruited from telephone listings.	Investigated associations between amount of routine domestic labour and transition to parenthood over 2 waves of data collection	Total hours spent on domestic work	• Women perform 3-fold more household work than men • After birth, women's household hours significantly increase, and this is so for each subsequent birth, men's are stable
(Australian Bureau of Statistics, 2008)  Australia	3900 households, nationwide random probability sample	2006 Time Use Survey to quantify how Australian's spend allocated time	Time use diaries	• Slight decline in domestic labour hours from 1997 TUS but still close to 3 hours / day. • Increase in time spent on child care

The most thorough available measurement of unpaid work is generated from Time Use Surveys (TUS) conducted by the ABS to measure and describe a broad range of individuals' daily activities. Three Australian Time Use Surveys have been conducted to date, in 1992, 1997 and 2006 (Australian Bureau of Statistics, 2008). The sample for the TUS is selected from a nationwide, random probability sample. Data is collected by a self-report questionnaire and time diary records over a forty-eight hour period stratified across weekdays and weekends, from nearly 4000 households. Participants select up to two concurrent activities, primary and secondary, in 5 minute units of time from a pre-determined list of activities (Australian Bureau of Statistics, 1997b).

Analyses of TUS data have found consistently that overall, women spend a far greater proportion of their time on unpaid domestic labour than men (Bittman, 1998, 2004; Craig, 2002). Unpaid household labour consumes one third of women's time, but only one fifth of men's, and this did not change between the 1992 and 1997 surveys (Australian Bureau of Statistics, 2001; Baxter, 2002; Bittman, 2004). In the 1997 TUS, the gap between women's and men's unpaid labour was smaller than in 1992, but this was due to employed women's reduction in domestic work, rather than men's increase in unpaid labour (Baxter, 2002; Bittman, 1998). The proportion of men who assume an equal responsibility for domestic work and childcare remains very small (Bittman, 2004). Preliminary reports of the 2006 TUS show a slight decrease in women's domestic labour per day, but the total amount of housework performed each day is close to three hours. Conversely, women's time spent in providing care for young children has increased from the 1997 survey (Australian Bureau of Statistics, 2008).

Data from the Household Income and Labour Dynamics Survey (HILDA), a repeat-wave survey of a random representative sample of over 7600 Australian households, concurred with the TUS finding that women undertake the majority of unpaid work (Fisher, 2002). Fisher reports that in 2002, 67% of the 4299 partnered women surveyed in HILDA performed "more than (their) fair share of housework each week". Similarly, analysis of data drawn from three independent nationally representative population samples surveyed in 1987, 1993 and 1997 respectively, found that while women's overall unpaid work had decreased between 1987 and 1997, women continue to perform the majority (Baxter, 2002).

The amount of time spent in domestic work varies across different stages of the life-course. The most hours of unpaid labour per day are performed by married mothers compared to fathers or married women with no dependent children. Married mothers with dependent children spend on average 6 hours per day in childcare and domestic work, compared with three hours for fathers, and approximately five hours for unpartnered mothers (Australian Bureau of Statistics, 1999, 2001). Analyses of TUS and HILDA have demonstrated that the highest unpaid workload is performed by married

mothers with at least one child less than five years of age in the household. On average, they are occupied for over twenty hours per week in domestic work, and a further 35 hours per week in care of their children (Bittman, 1991, 2004).

Mothers' who are not in the paid workforce are often colloquially described as having "time-off" or "not working". In an analysis of 1992 TUS data, Craig (2002) has compared the total paid and unpaid workload for all mothers of children less than 15 years, whether in paid employment full-time, part-time or in full-time domestic work. Craig found that mothers in full-time employment and those in full-time domestic work had the same daily workload, and mothers' employed-part-time have the greatest total workload of all. She concluded that mothers in full-time domestic work are working as many hours as full-time employees, and many of those hours are spent in at least two simultaneous activities.

A large proportion of women's domestic work is providing care for children, and women perform seventy-four per cent of all direct and indirect care of children (Australian Bureau of Statistics, 2001). The most common secondary activity recorded in the 1992 TUS was related to providing care for dependent children (Craig, 2002). While there was a small increase in the amount of time fathers' spend with their children between the 1992 and 1997 TUS (Bittman, 1995b), it appears that fathers "help" rather than replace maternal care. Mothers are disproportionately responsible for the physical care, feeding and comforting of their children, while fathers tend to spend their time playing with their children, rather than providing direct care (Bittman & Wajcman, 2004; Craig, 2003; Fisher, 2009).

An important limitation of time use studies is that although up to two simultaneous activities are recorded every five minutes, mothers often perform more than two concurrent domestic tasks. Some have argued that mothers spend their time performing numerous household tasks while accompanying their children and providing indirect supervision. Current time use evidence is likely to be an underestimate of women's total workload, and does not accurately capture the ways in which women's time might be constrained by the necessity of accompanying children (Folbre, Yoon, Finnoff, & Fuligni, 2005; Ironmonger, 2004; Smith & Ellwood, 2006).

Another limitation is that data from TUS are aggregated to provide group information about mothers of children aged from birth to five years. There is limited specific evidence about mothers of infants under twelve months, and the data are rarely reported by parity.

Three recent studies have quantified the increase in, and subsequent division of, unpaid domestic workload following the birth of an infant. The Time Use Survey of New Mothers (TUSNM) (Smith & Ellwood, 2006) was designed to measure the changes in workload from pregnancy to the postpartum year prospectively, and to provide specific information about the daily activities of mothers of infants. The TUSNM advertised for volunteers to participate, and obtained data from 188 primiparous and multiparous women during pregnancy and at three, six and nine months following the birth. Demographic information was collected by a self-report questionnaire, and pre-coded activities were entered into an electronic recording device. Respondents were more likely to have post-school qualifications, but less likely to be employed than the Census distribution for similar age groups, and 99% were married.

Data from TUSNM were analysed separately according to parity. Compared to pregnancy, primiparous mothers performed 3-4 extra hours of housework each week, provided 44 hours of infant care - feeding, settling and playing - and lost 13 hours of sleep and personal care time per week. The peak workload occurred at 9 months postpartum, by which time external help may have been less available, mothers resumed more daily household tasks, and in 40% of cases had added paid employment. Mothers in the TUSNM recorded twice as much time providing care for their children than in the ABS 1997 TUS, as they were able to select multiple activities at any one time. This provides a more accurate picture of the amount of time women spend in multiple activities whilst being available for their children's needs than the ABS Time Use Surveys (Australian Bureau of Statistics, 2001, 2008). It is difficult to generalise from these findings as the sample is not representative of all Australian mothers. However, the TUSNM is unique in that it quantifies the large increase in unpaid workload that women undertake following the birth of an infant. In

addition, Smith addresses the limits of the ABS Time Use Surveys in allowing participants to demonstrate the number of concurrent activities characteristic of early parenting.

Baxter et al. (2008), reporting findings from two data collection intervals from a repeat-wave survey of over 1091 women, noted the increase in women's overall hours of domestic work following the birth of a first infant from a mean of 14 hours per week in the year prior to the birth, to approximately 21 hours per week in the year following the birth. Men's hours of housework per week were stable, at less than 10 hours per week, regardless of whether they had recently become a father. Women's hours continued to increase with the birth of subsequent children. The authors argue that the transition to parenthood marks the beginning of the significant gendered gap in the division of household labour, one that becomes entrenched and grows with the birth of subsequent children. Similar findings had been reported earlier in the United States of America. A prospective study, by Gjerdingen and Center (2005), measured changes in American parents' paid and unpaid labour from late pregnancy to six months postpartum. They reported that women experienced a 64% increase in their paid and unpaid total workload from pregnancy to the postpartum, compared to fathers' who reported a 37% increase.

There is strong consistent evidence about the unequal division of unpaid labour between women and men. While the precise nature of women's unpaid work, especially time spent in the care of an infant, is still emerging, it appears that the birth of a first infant further widens the gendered division of domestic responsibility. Unpaid work is invariably invisible, marginalised and under-valued, and impacts disproportionately on women because they retain the main responsibility for child-rearing and household tasks.

## **1.2 DETERMINANTS OF MATERNAL POSTNATAL EMPLOYMENT**

Demographic data have established that women's increased labour force participation across the life course, compared to that of previous generations, has been influenced



by women's higher levels of educational attainment; remuneration gradually increasing to parity with men's; by the greater availability of part-time work; and by various policy initiatives including "family-friendly" entitlements described above (Jaumotte, 2004; Leibowitz & Klerman, 1995).

One of the greatest constraints to women's employment is the number and presence of young children (Gray et al., 2002c). Although women's workforce participation increases as their youngest child begins formal schooling, not all women with young children participate at the same rate, if at all, once they begin childbearing. In Australia, analyses of Census data and of data provided by other large-scale representative surveys have found consistently that the employment of mothers with dependent children aged less than fifteen years is associated with several demographic variables (Birch, 2005; Gray et al., 2002c; Walter, 2003). Women with higher levels of education, more labour market experience prior to childbearing, and of more advantaged socio-economic status participate at a higher rate than less educated, less financially advantaged mothers. Mothers born in Australia are more likely to be employed than overseas born mothers, and mothers' participation is highest outside of the years normally associated with childbearing, before age 25, and after age 44 years (Birch, 2005; Gray et al., 2002c; Walter, 2003). Married mothers participate more than unmarried mothers, but the determinants of the workforce participation of unmarried mothers are similar to those of married mothers (Gray et al., 2002c; Walter, 2003).

It is likely that the determinants of employment for mothers in the first year following childbirth, when the demands of infant care are high, are different from those of mothers with older children. All women's employment participation has increased in the past three decades, including that of mothers of infants (Macran, Joshi, & Dex, 1996). Economists and demographers have, at the population level, investigated which maternal characteristics including maternal age, education level, marital status and occupational status are associated with postnatal participation in the paid labour force. In addition, some research attention, although little in Australia, has been paid to a broader range of factors which may constrain or facilitate postpartum

employment participation such as job characteristics, maternity leave policies, financial considerations, access to non-parental childcare, and partner and social support for maternal employment decisions.

### 1.2.1 Maternal Characteristics

National population survey data and smaller prospective studies from the United States of America, the United Kingdom and several comparable European countries have investigated the maternal socio-demographic characteristics including age, education, and occupational status associated with women's employment following childbirth. These studies are summarised in Table 1.7.

**Table 1.7 International studies investigating maternal characteristics associated with postnatal employment**

Authors Date Country	Sample	Aims and Study Design	Main findings
(Shapiro & Mott, 1979) USA	National, repeat-wave survey data of women aged 14-24, n>1400, data pertaining to first birth	Investigating labour force participation in months preceding and following first childbirth	Postnatal employment participation associated with: <ul style="list-style-type: none"> <li>• higher educational attainment</li> <li>• un-partnered status</li> <li>• No association with maternal age or income</li> </ul>
(Greenstein, 1989) USA	National, repeat-wave survey data of women aged 14-24, n=736, data pertaining to first birth	Investigation of factors determining time out of paid workforce following first childbirth	Earlier employment resumption associated with: <ul style="list-style-type: none"> <li>• high income, high occupational status prior to birth</li> <li>• high education levels</li> </ul>
(Desai & Waite, 1991) USA	Data from National Longitudinal Survey of Youth (NLSY), national probability sample of those aged 14-21 in 1979. For first births prior to 1985, n=1158.	Identify occupational characteristics contributing to employment following first childbirth	<ul style="list-style-type: none"> <li>• Women with high education, high wages, and greater job-specific training are employed later in pregnancy, and resume sooner in the postpartum year than less educated women earning lower income.</li> </ul>
(Wenk & Garrett, 1992) USA	NLSY data about first childbirth prior to 1986 used, n=1920.	Influence of job, family and status characteristics on maternal employment following first birth	<ul style="list-style-type: none"> <li>• Higher proportion of total family income earned by mother associated with earlier employment resumption.</li> <li>• older maternal age associated with earlier return than younger maternal age.</li> </ul>
(Leibowitz, Klerman, & Waite, 1992)	NLSY data about first childbirth prior to 1986 used	Analysis of women's decisions about when to resume employment in the first two years following	Employment resumption associated with: <ul style="list-style-type: none"> <li>• lower total family income</li> <li>• higher salaried occupation to</li> </ul>

USA		childbirth, and maternal characteristics associated with employment	return to
(Gjerdingen, McGovern, Chaloner, & Street, 1995)  USA	436 married women, first baby, employed in pregnancy, recruited from two diverse maternity sites	Prospective investigation of factors related to employment in postpartum. Data collected at 1,2,6,9 and 12 months.	<ul style="list-style-type: none"> <li>• at 3 months, employed women were those with highest education levels, younger age</li> <li>• Women in low status (manual / service) job, or those in highest (professional) jobs were more likely to be employed at 3 months than clerical / sales / technicians.</li> </ul>
(Klerman & Leibowitz, 1999)  USA	Combined representative sample, using mothers from NLSY and comparable non-mothers from Current Population Survey, N=5793total.	Examining job continuity among new mothers after enactment of universal unpaid family leave provision in 1993	Job continuity across first childbirth associated with: <ul style="list-style-type: none"> <li>• full-time employment prior to birth</li> <li>• completed high school</li> </ul>
(Barrow, 1999b)  USA	3468 women from Data from NLSY, national probability sample of those aged 14-21 in 1979. Subset of women, first birth <1994.	Determinants of postnatal employment following first birth for women who were employed in pregnancy	Postnatal employment associated with: <ul style="list-style-type: none"> <li>• higher potential wage</li> <li>• higher education</li> <li>• lower family income</li> <li>• lower childcare costs</li> </ul>
(Saurel-Cubizolles et al., 1999)  France, Italy and Spain	Approx. 500 women in each country, recruited from 2-5 rural and urban maternity units in each setting	Prospective analysis of main factors associated with postnatal employment resumption in three countries in first year following birth	Employment in three samples resumption associated with: <ul style="list-style-type: none"> <li>• professional / managerial occupation versus elementary work</li> <li>• full-time antenatal employment</li> <li>• No consistent trend according to maternal age</li> </ul>
(McGovern et al., 2000)  USA	Random sample of women from state birth records, oversampling of those with complications / un-partnered women. Weighted accordingly. Included in employed in pregnancy. N=654.	Identify employment and personal characteristics determining women's leave duration from employment following childbirth	Longer duration of absence following birth associated with: <ul style="list-style-type: none"> <li>• higher partner income</li> <li>• more health insurance coverage</li> <li>• married / partnered women versus un-partnered women.</li> </ul>
(Paull, 2006)  United Kingdom	1991-2003 British Panel Survey, nationally representative sample of 5000 households, men and women with and without children	Identify how and when differences in women and men's employment patterns develop – is first birth a significant time?	<ul style="list-style-type: none"> <li>• First birth marks decline in workforce participation</li> <li>• Employment following subsequent birth associated with employment between births.</li> </ul>

Maternal education is consistently predictive of postnatal employment, with more highly educated mothers resuming sooner, after first and subsequent births, and in greater proportions than mothers with less educational attainment (Barrow, 1999a; Gjerdingen et al., 1995; Greenstein, 1989; Klerman & Leibowitz, 1994, 1999; Macran et al., 1996; Shapiro & Mott, 1979; Vlasblom & Schippers, 2006). Women employed in professional, associate professional or managerial occupations, who are employed throughout their pregnancy are more likely to resume employment following a birth than women working in lower-waged, low status jobs, or those not employed during pregnancy (Garrett, Lubeck, & Wenk, 1991; Greenstein, 1989; Klerman & Leibowitz, 1994; Leibowitz et al., 1992; Macran et al., 1996; Saurel-Cubizolles et al., 1999). Similarly, full-time rather than part-time employment in pregnancy is associated with employment following childbirth. (Klerman & Leibowitz, 1999). Married and partnered mothers resume sooner following the birth than un-partnered mothers, as do mothers contributing a substantial proportion of family income (Barrow, 1999a; Desai & Waite, 1991; Garrett et al., 1991; Leibowitz et al., 1992; McGovern et al., 2000; Wenk & Garrett, 1992). As the number and presence of children restricts women's employment participation, a small interval between births also reduces the likelihood of maternal employment (Macran et al., 1996; Vlasblom & Schippers, 2006; Wenk & Garrett, 1992).

The association of maternal age at birth and postnatal employment has been mixed. One large-scale representative study, and another smaller longitudinal study of nearly 500 primiparous married women, both American, found that older mothers with longer work experience have longer time away from the workplace following birth (Gjerdingen et al., 1995; Greenstein, 1989). One interpretation of these results is that women who have established careers and permanent occupations are more likely to have access to maternity-related entitlements, and so can afford to remain out of the workforce for a longer time following birth (Greenstein, 1989). However, other studies (Barrow, 1999a; Macran et al., 1996; Vlasblom & Schippers, 2006; Wenk & Garrett, 1992) have found that older mothers resume employment sooner than younger mothers. Two studies found no effect of age on maternal employment after birth (Saurel-Cubizolles et al., 1999; Shapiro & Mott, 1979). The study by Saurel-

Cubizolles et al. was of three, independent convenience samples of women in three European countries, so was limited by non-representative sampling. Shapiro and Mott (1979) analysed data from a longitudinal survey of youth, and the age of their sample was limited to women having a first birth before 30 years of age. It is plausible that maternal age covaries with other employment factors in these younger women, such as occupational status and educational attainment, and in isolation is not a strong predictor of employment.

Few Australian studies have examined the characteristics of women who resume employment following a first birth. Baxter (see Table 1.1) analysed data from two waves of *Negotiating the Life-Course Survey* (NLC) to examine employment transitions across the birth of a first child (Baxter, 2005a, 2005b). NLC is a longitudinal multi-wave telephone survey of a sample of more than 2200 Australian adults randomly selected from the electronic telephone directory (Breusch & Gray, 2005). Baxter assesses work history retrospectively, from a sub-sample of 800 women aged between 18-54 in the 1997 and 2000 waves, who had at least one child under fifteen years of age. Variables associated with a more rapid return to work following first birth include older maternal age, higher levels of educational attainment and having been employed throughout the pregnancy. Married women reduce their employment participation after birth. Although a lower proportion of single mothers are employed overall, a similar proportion of un-partnered women are employed pre- and post-natally, and Baxter suggests this is due to the greater financial need of un-partnered women to resume employment sooner. Women who had a subsequent child soon after the index birth are less likely to resume employment after the first birth. Managers and professionals employed in the private non-government sector are more likely to resume after the birth than comparable status employees in the government public sector, possibly because of the greater access to maternity leave provisions in the public sector. The same pattern does not exist for women employed in sales, or in service or clerical occupations who resume at similar rates in both public and private sectors.

These data are useful as they provide specific information about first births to Australian mothers. However, Baxter acknowledges some limitations. Data were collected retrospectively and are putatively subject to recall bias. As the data were collected in annual blocks rather than in months, short employment breaks of less than twelve months are not captured by these data. Further, no information is given about the leave arrangements used enabling women absence from the workforce following the birth, so these data cannot determine how leave arrangements influence the timing of return to employment.

Another analysis of mothers of infants in the same Negotiating the Life Course survey found an association between higher education and employment in the first year following a birth ( Gray & McDonald, 2002). Twenty-one percent of mothers who had completed only full or partial secondary education resumed or began employment following the index birth, compared with 56% of women who had higher educational qualifications. Mothers over thirty years of age also had higher employment participation following birth than younger mothers.

The demographic and economic literature has focussed primarily on quantifying the relative contribution of maternal factors that are associated with the likelihood of participating in paid employment such as education, income and previous labour market experience. Empirical investigations based on this conceptualisation fail to account for the qualitative aspects of women's decision-making about paid employment. It is likely that mothers' decisions are multi-factorially governed by a range of factors including material circumstances such as access to alternate childcare, job characteristics and financial considerations, attitudes about using non-maternal care and their own health and well-being. Further, decisions occur in a workplace and policy context that may facilitate or constrain individual choice about postnatal employment (Baxter, 2008b), but these factors are rarely accounted for in econometric analyses.

## **1.2.2 Personal, Familial and Social Influences on Postnatal Employment**

A number of studies, both international and Australian, have examined a broader range of individual, contextual and familial variables relating to maternal employment following birth. These studies have investigated, together or in isolation, mothers' decisions about paid employment as influenced by their own preferences, financial considerations, social support, infant factors and contextual factors.

### **1.2.2.1 Financial Considerations**

Necessity for income generation is the main reason Australian women report for resuming employment in the first year following childbirth. In the Australian Pregnancy and Employment Transitions Survey (see Table 1.1), "financial reasons" was the most common reason given by 73% of women who had resumed or started employment within two years of their child's birth. The second most common reason endorsed by 30% of participants was "adult interaction and mental stimulation" (Australian Bureau of Statistics, 2006d). This pattern of responses was the same across all income quintiles, suggesting that financial imperatives are a significant factor for all women resuming employment following childbirth across the socioeconomic spectrum.

Similar results have been reported from analyses of the Parental Leave in Australia Survey (PLAS) (see Table 1.1). Baxter (2008b) reported that of the 2,085 women who had resumed employment between 15 and 29 months following the birth of the study child, 66% reported that they resumed because "I/we needed the money". One in three women reported this as the main and sole reason they resumed employment. The remainder reported this reason in combination with another fixed-choice response including "I prefer to be working" (22%), "my employer wants me back" (22%) and "I need to maintain my skills and qualifications" (29%). Whitehouse et al. (2006c; 2008) found that, of PLAS respondents (1191) who resumed employment by 15 months after birth, 45% reported that they "had returned earlier than liked because they needed the money".

The qualitative component of one recent Australian survey, the *Family and Work Decisions Study* (FWDS) (Gray & Renda, 2005), has attempted to explore the influence of financial considerations relative to other salient factors in decisions about maternal employment (Hughes & Hand, 2005). Based on interviews with 29 unpartnered and 32 partnered mothers of children aged from infancy to mid-teens, this study found that financial considerations were influenced by a number of contextual factors such as the supportive nature and quality of their intimate relationship in the partnered mothers, and beliefs about the importance of mothers, rather than fathers, providing primary care to their children. The authors concluded that financial considerations were relatively unimportant in decisions about maternal employment. This sample was not restricted to either primiparous mothers, or those with a young infant, so the relevance of these findings for primiparous mothers with an infant cannot be confirmed. This Australian evidence supports data previously reported in international studies, summarised in Table 1.8

**Table 1.8 International studies investigating the relative contribution of financial necessity to maternal employment participation**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Main findings</b>
(Volling & Belsky, 1993)  USA	Subsample (n=56) of 164 married women expecting first infant, recruited from a single major obstetric practice, analysis included those who resumed employment by three months after birth	Investigate reasons for factors contributing to employment resumption at three months postpartum	<ul style="list-style-type: none"> <li>• Financial necessity most commonly reported reason for resumption (&gt;60%), followed by personal enjoyment (&gt;50%); desire to develop career (&gt;40%); fear of job loss (&gt;20%).</li> <li>• Financial necessity more likely to be reported by women who had low educational attainment</li> </ul>
(Hyde, 1995; Hyde, Essex, Clark, Klein, & Byrd, 1996)  USA	570 employed pregnant women, mixed parity, partner, recruited from a range of obstetric / antenatal care settings	Prospective investigation of relationship between maternity leave policy, mothers well-being and range of family, social and individual factors contributing to maternal employment	<ul style="list-style-type: none"> <li>• 50% of women reported at 4 months postpartum that their leave was “too short”, and similar proportion would have taken longer leave of absence if it were available</li> <li>• 46% of women reported they resumed for financial reasons, and could not afford to take full 12 weeks unpaid leave provided by law</li> </ul>



One prospective, longitudinal study of a cohort of over 570 mothers of mixed parity in the United States found that 50% of participants would have preferred longer time out of the workforce, and 46% reported that their reason for resumption was that they could not afford to have longer time away from the workforce (Hyde et al., 1996) (Hyde, 1995). Whilst most participants had access to the 12 weeks of job-guaranteed statutory unpaid family leave provided in the United States, many women were unable to utilise this full amount of leave due to their need for an income. The average period of leave taken was only ten weeks. Most (96%) of the sample in this study were partnered women who potentially had access to their partner's income but even they resumed their employment soon after the birth. Similar results were found by Gjerdingen et al. (1995) (see Table 1.7), in a prospective study of over 400 married primiparous women, for whom the predominant reason for resumption was financial.

Both Gjerdingen's and Hyde et al.'s results were supported by findings from an American longitudinal study of 164 employed married mothers expecting their first child (Volling & Belsky, 1993). Participants were drawn from a consecutive sample recruited in several obstetric practices, although the response was only 55%. They were interviewed in pregnancy and followed until 9 months postpartum. Financial need was stated as the main reason for over 60% of mothers resuming employment after birth, and this was true for mothers employed full-time and part-time. However, these authors noted socioeconomic differences in women's reasons for being employed. Women with higher education, higher occupational status and higher income were more likely to report that career development and personal enjoyment reasons were the primary determinants of their decision to resume work. Families of lower socio-economic status were more likely to report that financial need was the most important consideration.

It appears therefore that women have limited discretion about when to resume employment following birth, with employment resumption often described as necessary for the generation of income. This is of particular relevance currently in Australia where there is no universal provision for paid maternity leave. It is likely that financial imperative is one of a number of salient considerations, interacting with

maternal preferences and attitudes, which contribute to women’s paid employment decisions following birth. The relative contribution of this has not been comprehensively described by the current evidence.

### 1.2.2.2 Maternal Preferences and Attitudes

Several studies have investigated the contribution of maternal preference for employment, availability of choice, beliefs and career salience to maternal employment decisions and participation in the postpartum, and during early parenting. A summary of these studies is presented in Table 1.9.

**Table 1.9 Studies investigating maternal preferences, attitudes and employment participation**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Main findings</b>
(Greenstein, 1986)  USA	895 married women, first birth prior to 1978. Subset of random population sample of women aged 14-24 in 1968, repeat wave annual survey.	Investigate whether attitude towards women in the labour force will have a positive effect on labour force participation in the postpartum	<ul style="list-style-type: none"> <li>• Favourable attitude towards women’s employment (9-item scale) strongly associated with employment following birth, when family income, education, included in model.</li> </ul>
(Amstey & Whitbourne, 1987)  USA	30 pregnant women, married, full-time employment, socio economically advantaged, expecting first child, recruited via 5 obstetric practices	Comparing employment commitment in pregnancy and at 12 months postpartum from women who had resumed full-time, part-time or not-employed	<ul style="list-style-type: none"> <li>• Women employed postpartum full-time more likely to consider their employment a “career” rather than a “job</li> <li>• Conclude that employment attitudes prior to birth critical to postnatal employment decisions.</li> </ul>
(Glass & Riley, 1998)  USA	324 pregnant women, employed, recruited in first trimester via antenatal visits to four diverse hospital sites in one US county area	Investigating employment transitions in first postpartum year, and factors associated with these transitions. Interviewed 3 <sup>rd</sup> trimester, 6 and 12 months postpartum	<p>At 6 months postpartum:</p> <ul style="list-style-type: none"> <li>• women who reported a preference for full-time unpaid workforce in pregnancy more likely to exit workforce following birth</li> </ul>
(Werbel, 1998)  USA	70 pregnant women, first baby, married and employed full-time recruited from two hospital sites	Prospective investigation of influence of spouse, income and preference on maternal intention and actual employment at 6 months postpartum	<p>Employment at 6 months associated with:</p> <ul style="list-style-type: none"> <li>• prenatal intention for job</li> <li>• lower partner income</li> <li>• Antenatal intention associated with less valuing of exclusive maternal care-giving role</li> </ul>

(Lyness, Thompson, Francesco, & Judiesch, 1999) USA	Convenience sample of 86 employed pregnant women, recruited through antenatal classes and private obstetric rooms	Survey investigating individual and workplace factors associated with employment resumption	<ul style="list-style-type: none"> <li>• Women who reported belief in the primacy of constant maternal care planned longer leave duration than those accepting a less “traditional” model</li> </ul>
(E. Gray & McDonald, 2002) Australia	Subset of NLC 1997 data, random sample of adults selected from white pages, included in this study were women with one child under 1yr and/or under 5 yrs, n=749.	Investigate employment, family and personal characteristics associated with maternal employment participation for mothers of children <5 yrs of age	<ul style="list-style-type: none"> <li>• Mothers with “Social equity” attitudes (egalitarian attitude about women’s access to paid work, and sharing household work) more likely to be employed than those with homemaker identity when maternal education, no. of children and partner income held constant</li> </ul>
(Hakim, 2002) Britain	Adults >16 yrs selected from a random sample of households, nationally representative	Cross-sectional investigation of lifestyle preferences and women’s employment participation	<ul style="list-style-type: none"> <li>• 13% of women “home centred”</li> <li>• 77% “adaptive” (themselves as secondary earner, egalitarian unpaid work, and not employment centred)</li> <li>• 10% employment-centred – egalitarian family roles and would choose employment regardless of necessity.</li> </ul>
(Houston & Marks, 2003) Britain	349 women recruited via public access antenatal classes	Prospective study of employer support, antenatal intention and planning for return and postpartum employment in first year	<ul style="list-style-type: none"> <li>• 76% of women with antenatal intention for employment after birth were employed at 12 months</li> <li>• Women with antenatal intention for employment but not employed in postpartum had fewer antenatal plans, and lower income than those employed in postpartum</li> </ul>
(McRae, 2003) United Kingdom	Nationally representative, random sample of recent mothers from child-benefit database, n=1500.	Prospective investigation of the relationship of women’s attitudes about employment to their employment histories following birth (testing Hakim’s Preference Theory)	<ul style="list-style-type: none"> <li>• Continuum of maternal preferences, rather than fixed categories</li> <li>• Women who are employed full-time after birth are not distinct in terms of preferences / attitudes</li> <li>• Employment constrained by childcare access, behaviour is not a proxy for preference</li> </ul>
(Himmelweit & Sigala, 2004) United Kingdom	1335 mothers of pre-school children, from a random, repeat-wave household nationwide survey 1991-99.	Investigate mothers’ decisions about employment and care for their pre-school aged children, and effect of change over 1990’s.	<ul style="list-style-type: none"> <li>• For employed women who agreed that employment was harmful for their children, 46% changed this attitude over 2 years, 29% gave up employment.</li> </ul>

(Walter, 2005)  Australia	Sub-sample of 585 sole and married mothers of child < 18 years, from NLC*, a random national population sample of adults selected from electronic white pages	Cross-sectional investigation of relative contribution of financial necessity, ideological and practical constraints to mothers' employment participation	<ul style="list-style-type: none"> <li>• decisions about employment are complex, differences constraints operate for partnered and un-partnered women</li> <li>• women of lower socio-economic position more likely to report a belief that mothering is inconsistent with employment</li> </ul>
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\*Negotiating the Life Course Study

One of the contemporary theories about women's workforce participation across the life course is Hakim's Preference Theory (Hakim, 2000). Hakim, a British sociologist, developed Preference Theory after reviewing existing survey and longitudinal data generated in the 1970's and 1980's describing women's employment patterns (Hakim, 1996, 2000). Hakim found that women's attitudes about and preferences for employment participation were more predictive of labour force participation than individual, household, employment and structural characteristics.

The main tenet of Preference theory is that women are heterogeneous, and have different priorities and preferences that dictate their employment choices over the life-course. Hakim argues that in contemporary, affluent societies preference is the main determinant of women's employment outcomes, as women enjoy freedom of opportunity due to effective contraception; equal opportunity in the workplace and an absence of sex-discrimination; the availability of part-time employment and the increasing privileging of individual choice (Hakim, 2002). Furthermore, Hakim argues that following these social changes women are free from material constraints and can choose their lifestyle options accordingly. Employment participation is perceived by Hakim as a function of choice and an expression of preference.

In order to test Preference Theory empirically, in 1999 Hakim conducted a survey of nearly 2000 women randomly selected from a probability sample of British households (Hakim, 2002). A respondent, aged between 16-64 years was chosen from each selected household, for a final sample of 3651 persons (2960 women), a 68% response. Attitudes and preferences were assessed using three, fixed-choice response items aimed at identifying women's employment and family attitudes.

These survey data identified the three groups of women that Hakim describes in Preference Theory: “home-centred” women (20%) who remain predominantly engaged in unpaid labour once they begin their childbearing; “work-centred” women (20%) who prioritise paid employment throughout their lives, and “adaptive women” (60%) who combine both paid employment and unpaid labour whilst prioritising neither. Hakim analysed the employment behaviour of these three preference groups, focussing on hours of employment that women worked, rather than employment participation per se. “Work-centred” women were employed for the most hours, and “home-centred” the least. “Adaptive women” had fluctuating employment hours, and Hakim suggests that these women are the most responsive to employment and family policy and workforce initiatives that will allow them to fulfil their joint priorities of both employment and family life. In Hakim’s view, these preferences are fixed, personal characteristics of women.

There are several theoretical and empirical critiques of Hakim’s theory. Preference Theory assumes that women’s preferences and employment orientations are fixed, and remain static across the life-course. It is based on cross-sectional evidence from a sample of women aged between 16-64 years, and thus does not allow that preferences and attitudes may change along with societal attitudes, and also at different life-stages for example after the birth of a baby, and when children begin formal schooling or leave the parental residence (Cartwright, 2004). A repeat-wave survey from the United Kingdom of a representative sample of over 1300 mothers of pre-school children, conducted at a similar time to Hakim’s survey, found that mothers’ attitudes were dynamic over the nine-year study period (Himmelweit & Sigala, 2004). This survey demonstrated that of the mothers who were employed and initially believed that employment was detrimental to their pre-school child’s well-being, 46% had changed their attitude over a two-year interval while continuing their employment participation. All participants obtained more positive attitudes towards maternal employment over time, as maternal employment rates increased each year of the study and participants own employment experience expanded. This suggests that mothers’ attitudes are amenable to change depending on circumstances and experience, and

challenges Hakim's assertion that women can be categorised into a typology that is fixed across the lifecourse.

Further, Hakim assumes that due to major recent social change, women currently enjoy equitable access to workplace opportunity, remuneration equal to that of men, face no discrimination in the workplace, and do not retain the majority of the burden of unpaid labour even when employed. Hakim argues that it is personal preference that inequitably concentrates women in marginalised, poorly remunerated part-time positions, and that women seek less hours and less demanding occupations than men (Hakim, 2006).

There is growing empirical evidence to challenge these assumptions. In Australia it is clear that women face workplace discrimination (Charlesworth & MacDonald, 2007; Human Rights and Equal Opportunity Commission, 1999), unequal access to family and maternity provisions (Gray & Tudball, 2002b), poorer outcomes than men in enterprise bargaining and workplace agreements (Pocock & Masterman-Smith, 2005), the majority of the responsibility for domestic labour and childcare (Bittman, 1995a; Burgess & Strachan, 2005; Wolcott & Glezer, 1995) and financial imperatives to participate in paid employment (Baxter, 2008b).

McRae (2003) used repeat-wave survey data collected between 1991 and 1999 from over 1500 primiparous British women, to test the applicability of Hakim's Preference typology. This sample was randomly selected from the child-benefit database and data were collected from respondents at one, five and eleven years following birth. McRae found that the differences in women's employment outcomes following birth could be accounted for by observable, external characteristics such as access to childcare, difficulties finding suitable employment, financial need and marital disruption. Preferences, McRae argues, were not a reliable predictor of employment participation. She concludes that women differ in their preferences and in their ability to enact their preferences due to material and structural constraints. Crompton and Harris (1998a) also refute Hakim's theory as being too simplistic in suggesting a strong relationship between preferences and employment participation. Comparing data from five countries, Crompton and Harris argue that employment participation cannot be seen

as a direct demonstration of preference. They highlight that there are still robust structural constraints on women's employment, such as the unequal division of domestic labour, and the segregation of women into marginalised occupations and industries. Preference theory serves to minimise gender differences and obscure the barriers still shaping women's employment participation (Ginn et al., 1996).

Several Australian studies have attempted to measure the influence of maternal preferences and beliefs about maternal role in relation to maternal employment when there are dependent children of less than fifteen years of age present in the household (see Table 1.9). The *Negotiating the Life Course Survey* (NLC), a longitudinal, repeated telephone survey of a random sample of more than 2200 Australian adults (Breusch & Gray, 2005), collected information about maternal role beliefs and maternal attitudes towards paid employment. One analysis of NLC data, from a representative subset of over 500 sole and married mothers, used a single-item attitude question to assess participants' beliefs about whether employed mothers establish an equally "warm" relationship with their children as non-employed mothers (Walter, 2005). This study found that fewer women who disagreed with the statement were employed than women who agreed with the statement, and also found that disagreement was associated with less socio-economic advantage. Although it is difficult to capture attitudes and beliefs accurately with a single item, the author concluded that preferences and beliefs interact with practical constraints and pressures to predict workforce participation.

Another analysis of NLC data from over 700 respondents with a child aged under five years of age used several items to assess "social equity" and "maternal identity" (Gray & McDonald, 2002) (see Table 1.9). "Social equity" was defined as mothers' attitudes about women's right to participate in public life and access provisions such as employment opportunities and remuneration equal to those of men. "Maternal identity" measures women's belief about the importance of women fulfilling primarily a homemaker role. Analysis revealed two independent scales, measuring different aspects of mothers' attitudes. Maternal belief in social equity, but not maternal identity predicted workforce participation when maternal educational

attainment and number of children under five in the household were adjusted for in analyses.

Baxter (2008), analysing data from the Parental Leave in Australia Survey (see Table 1.1), found that of the 2085 women who had resumed employment by the time that their infant was 30 months old, 21% agreed that “I prefer to be working” was a reason for their employment participation, although few women (<5%) gave this as their sole reason. Baxter concludes that decisions about employment participation for women with young children are complex, and that preference for employment often co-occurs with constraints including the necessity to sustain skills or qualifications, having to take up employment opportunities when they are presented, and concern that a longer leave would have adversely affected career opportunities.

There is sparse Australian evidence about the relative contribution of maternal preferences to employment outcomes specifically in the first postnatal year. There is however, a small body of international research that has investigated the role of maternal preferences in postnatal employment.

Studies of small, convenience samples of women, have found that antenatal intention for employment and less traditional attitudes about maternal role are associated with higher likelihood of postnatal employment (Amstey & Whitbourne, 1987; Lyness et al., 1999; Werbel, 1998) (see Table 1.9). One early repeat-wave survey of American, Caucasian, married, primiparous women found that employment preferences predicted postnatal employment to a greater degree than education, age or job characteristics (Greenstein, 1986). This sample was limited to partnered, socio-economically advantaged women, however, and findings cannot be generalised to women in less-advantaged circumstances.

Longitudinal studies have reported mixed effects of maternal preferences and beliefs on employment outcomes (Table 1.9). Houston and Marks (2003) collected data from 412 partnered, primiparous women who were employed full-time in pregnancy. Participants were recruited in antenatal classes and employment intentions were assessed using a single item. Participants were interviewed briefly again at 12 months



from the estimated date of delivery, and current employment status was recorded. One in four women were not employed postnatally as they had intended when asked during pregnancy. They were either employed for fewer hours or not at all. Houston and Marks conclude that preferences are not the only influence on employment. However, participants were not asked postnatally about intentions or preferences for paid work and it appears that prenatal assessments of postnatal employment preference may not be an accurate reflection of postnatal preferences. It is possible that some women's employment preferences change, at least temporarily, across the transition to parenthood. The developing mother-infant relationship, changing partner and social relationships, and the growth of self-concept as a mother are potential contributors to women's existing occupational identity, and their orientation to employment.

Conversely, Glass and Riley (1998), in a prospective investigation of over 300 women recruited from four maternity hospitals in pregnancy found that women who, during pregnancy, planned to be occupied in primary infant care were significantly more likely to be out of the paid workforce at six months postpartum than women who intended some postnatal employment.

Therefore, there is some evidence that maternal intentions, preferences and attitudes are of salience to their postnatal employment decisions. Of the available evidence however, several studies are hampered by small, convenience samples, of partnered, advantaged women (Amstey & Whitbourne, 1987; Lyness et al., 1999; Werbel, 1998), and cannot be generalised to more diverse groups of women. Others have relied on cross-sectional rather than prospective design and cause, rather than association, cannot be inferred (Gray & McDonald, 2002; Greenstein, 1986; Lyness et al., 1999). Those that have investigated the effect of antenatal preference on postnatal employment using a prospective design have reported some evidence that preferences contribute to maternal employment (Glass & Riley, 1998; Houston & Marks, 2003). Given that financial concerns are the main reasons women report for resuming employment postnatally, it is likely that there is an effect of lower socio-economic status constraining the enactment of preferences.

In the existing literature, employment participation is frequently assumed to reflect personal preference. Baxter, in reference to her analysis of NLC data (Baxter, 2005a, 2005b), concludes that “working” women are not a homogenous group, but rather includes women who have resumed employment due to financial necessity, and those who have resumed due to preference and high career attachment. Similarly, “not-working” mothers include those who have high status occupations and thus have greater access to leave provisions, and also those who cannot afford or access childcare, or find employment that is possible to combine with the care of their infant (Baxter, 2005b). It is likely therefore that women observed to be participating in employment are not all acting according to their preferences.

### **1.2.2.3 Social Support**

Social support is broadly defined as both emotional and practical support from family members and peer group. A few studies have examined whether emotional and practical support from colleagues, peers or partners facilitates mothers’ postnatal employment.

One longitudinal study followed a sample of 94 employed, partnered, primiparous women who intended to resume employment postnatally (Killien, 2005). This study investigated the relationship between women’s satisfaction with their decision to resume employment, work-family balance, quality of support from workplace, emotional and practical assistance from partner and satisfaction with childcare. Social support in the workplace from both peers and supervisors was associated with maternal reports of both high functional performance of daily activities, and capacity to manage employment and family, both measured using standardised instruments.

Glass and Riley’s (1998) prospective study of over 300 women (Table 1.9) reported similar results, albeit using non-standardised measures. This study found that women whose partners were contributing “more than his share” of household work were more likely to report greater satisfaction with their return to employment at four months postpartum. This suggests that spousal instrumental support with domestic labour is a salient factor enabling women to resume employment. Glass and Riley however found no demonstrated relationship between partner emotional support and maternal

satisfaction with employment decision, although spouse support was measured by a single-item Likert-scale that asked participants to rate the amount of support that her spouse had for her job. This item does not capture other elements of spousal support, such as emotional care unrelated to mothers' employment, which may indirectly facilitate women's ability to feel that they can meet the demands of a paid job concurrent with caring for an infant.

Gjerdingen et al. (1995), in a longitudinal study of over 400 married, primiparous American women (see Table 1.7), found that women who had resumed employment were significantly more likely to report that they received more household help from their husbands, and more practical support from friends and family than those who remained out of the workforce after birth at three months following birth. These results were not supported by a smaller prospective study of 164 married primiparous American women. Volling and Belsky (1993) found no differences between employed and non-employed mothers postnatally in the domestic division of labour and the quality of the marital relationship.

There is some suggestion therefore that women consider the adequacy of their available support network when deciding on the benefits or pressures of participating in paid work. However, there is as yet little consistent evidence about which dimensions of peer, workplace and partner support are salient to women's labour force participation.

### **1.2.3 Public Policy and Structural Factors**

There is emerging Australian evidence that women's labour market participation for all age cohorts is positively affected by policy and institutional factors such as government-subsidised childcare and parental and family-related workplace entitlements (Birch, 2005; Doiron & Kalb, 2005; Pettit & Hook, 2005; Samson, 2002). Few Australian studies have examined the effect of these policies on women's labour force participation in the postpartum period.

### **1.2.3.1 Maternity Leave Entitlements**

Analysis of ABS Pregnancy and Employment Transitions survey (Australian Bureau of Statistics, 2006d), and of the Parental Leave in Australian Survey (PLAS) (see Table 1.1) (Whitehouse et al., 2006c) found that the most cited reason Australian mothers report for resuming employment is financial necessity (Australian Bureau of Statistics, 2006d; Whitehouse et al., 2006c). Forty-six percent of PLAS participants also reported that they “would have taken longer leave if they had access to some, or more, paid maternity leave”. Conversely, only 6% of families reported that longer unpaid maternity leave would have benefited them in the same period. Taken together, these data suggest that access to paid maternity leave entitlements are a salient consideration in Australian women’s postnatal employment decisions.

Baxter (2008a), also using PLAS data, compared employment resumption each month for the first eighteen months following birth for women using paid and unpaid maternity leave, alone or in combination. By three months postpartum, women who had accessed both paid and unpaid maternity leave were less likely to return to employment than women accessing other forms of leave such as sick, or annual leave, or than those who had accessed paid or unpaid maternity leave singly, not in combination. Between 10 and 12 months postpartum women using combined paid and unpaid maternity leave had the highest rate of employment resumption compared to women using other leave types, or no leave, presumably as the statutory period of unpaid leave ends after 52 weeks. These findings suggest that a combination of paid and unpaid maternity entitlements protects both a woman’s time with her infant in the early postpartum months, and their job security enabling a return to employment later in the postpartum year.

Several studies internationally have investigated the presence of paid and unpaid maternity leave policies, and the effect on employment following birth, and these are summarised in Table 1.10.

**Table 1.10 Maternity leave policies and employment participation**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Main findings</b>
(Joesch, 1997)  USA	Sample drawn from nationally representative sample of women aged 15-44, included if live birth in 15 years prior to analysis	Investigating the impact of paid leave on length of women's workforce absence following birth	<ul style="list-style-type: none"> <li>• women with paid maternity leave were less likely to be employed in the first postpartum month than women without paid entitlement</li> <li>• those with paid leave more likely to resume in third month than those without entitlement</li> </ul>
(Glass & Riley, 1998)  USA	324 pregnant women, employed, recruited in first trimester via antenatal visits to four diverse hospital sites in one US county area	Investigating employment transitions in first postpartum year, and factors associated with these transitions. Interviewed 3 <sup>rd</sup> trimester, 6 and 12 months postpartum	<ul style="list-style-type: none"> <li>• combination of paid and unpaid maternity leave protected against women leaving paid workforce postpartum, or changing jobs.</li> </ul>
(McGovern et al., 2000)  USA	Random sample of 558 women obtained from state-wide birth records, disproportionately sampled women at risk of medical / neonatal complications	Survey, investigating relationship between leave policies and duration of workforce absence following birth at 7 months postpartum	<ul style="list-style-type: none"> <li>• 95% of sample resumed by 7 months postpartum</li> <li>• Access to paid leave (including annual, sick and maternity leave) increased mean leave duration by 4 weeks.</li> </ul>
(Jaumotte, 2004)	Combined participation data from 17 OECD countries, 1985-1999	Effect of policies (maternity leave, child care, tax policy) on women's workforce participation	<ul style="list-style-type: none"> <li>• Presence of national paid maternity leave policy associated with greater maternal workforce participation in first 20 weeks postpartum</li> </ul>

In general, access to paid maternity leave is positively associated with women's postpartum employment resumption (Glass & Riley, 1998; Jaumotte, 2004; Joesch, 1997). As well as providing income substitution to women over childbirth, maternity leave provides job security for the period of workforce absence following birth.

Several studies have investigated the relationship between access to paid entitlements and the timing of mothers' resumption of employment following birth. Repeat-wave survey data collected from a random sample of British households over a thirteen year period examined the impact of paid and unpaid maternity leave on postnatal

employment in a sample of over 2000 women (Paull, 2006) (see Table 1.7). Women who took either paid or unpaid maternity leave, or both, remained out of the workforce for that period of leave, and resumed soon after the leave had ended, ensuring that they did not forgo their right to resume at their previous job as protected by maternity leave legislation. McGovern et al. (2000) (see Table 1.10) found that women able to access any paid leave following birth including sick, holiday and maternity leave, had 4 weeks longer leave duration than women with no paid leave entitlement. These findings suggest that paid leave enables women to remain caring for their infant for a longer period following the birth, and increases the likelihood that women will resume their employment, benefiting from their right to resume at their pre-birth job.

While international evidence suggests that maternity entitlements are protective of job continuity, and provide for a longer break from the workforce following birth, each country has differing maternity leave provision and legislation, so it difficult to generalise from studies conducted overseas. Given that Australian mothers most often cite financial necessity as their reason for resuming employment, it is likely that access to paid maternity entitlement is a salient determinant of postnatal employment.

### **1.2.3.2 Job-Related Characteristics**

One of the strongest predictors of postnatal employment participation is being employed during pregnancy (Baxter, 2005b; Garrett et al., 1991; Klerman & Leibowitz, 1999). A small group of studies has investigated the effect on postnatal employment participation of workplace and job characteristics, such as the availability of flexible employment options and part-time employment.

Using American, national, representative survey data of 1150 primiparous women, one study found that several occupational characteristics were associated with women's workforce participation in the first three months after birth (Desai & Waite, 1991) (see Table 1.7). Contrary to hypothesis, this study found that being employed in occupations that have a high proportion of female employees had no effect on the likelihood of resuming employment following birth. However, women employed in organisations that had a relatively high proportion of mothers of young children were

more likely to resume employment in the first three postnatal months. Conversely, women occupied in jobs that had a high proportion of part-time employees were no more likely to resume than women working in occupations where the majority of employees were employed full-time. Desai and Waite suggest that the perception of peer support from other employees who are also combining employment and motherhood is an incentive to employment. The incentive of part-time employment however, appears to be eroded by the poorer conditions, lack of entitlements and reduced opportunities typically associated with part-time employment.

McGovern et al. (2000) (see Table 1.10) reported that women who agreed that they “returned to work because they feared missing out on pay raises or promotion” took significantly shorter leave than women who disagreed with the same statement, but only by five days. Although women who perceived their jobs to be flexible resumed their employment soon after the birth, women reporting that their workplace was “family friendly” took longer leave than those not describing their workplace as family friendly. These findings seem contradictory, and are difficult to interpret. It is plausible that there was significant variation in the way that the construct of “family-friendly” was inadequately operationalised, and participants held different views about what “family-friendly” means.

Two other studies have had conflicting results about the relationship between job characteristics and postnatal employment. A longitudinal study of 192 American women recruited in one American maternity hospital found an association between postnatal employment and agreeing with statements such as “I like my job” and “my job has good hours” (Symons & McLeod, 1994). There was no association between postnatal employment and the availability of flexible hours or of part-time work. A second American study surveyed 86 pregnant women who volunteered for participation during antenatal classes (Lyness et al., 1999) (see Table 1.9). This study only collected data in pregnancy about women’s intended postnatal plans for employment. Actual employment after the birth was not confirmed. Pregnant women who perceived that their organisations were supportive and had positive “work-family cultures” as assessed on a nine-item Likert scale were more likely to intend postnatal

employment participation than women reporting less perceived workplace support. This study however, was methodologically poor, using a small, convenience sample of women.

Available Australian evidence also suggests that, along with financial imperatives, employment factors are of relevance in determining women's employment resumption following birth. Baxter (2008b), using PLAS data (see Table 1.1), found that of the 56% (2085) women who had resumed employment by 29 months after the birth, 25% reported that their reasons for returning to employment included "needed to maintain my skills / qualifications", 21% that their "employer wanted me back", 12% reported that "a new opportunity came up", and nearly 10% felt that "a longer break would harm my career".

Baxter and Gray (2006) investigated the paid work characteristics of the 38% of mothers of infants in the Longitudinal Study of Australian Children infant cohort who had resumed employment following birth (Baxter & Gray, 2006). Employed mothers of infants were more likely to be employed in higher status occupations, and employed on a part-time basis than all employed, Australian women. Eighty-three percent of employed mothers of infants reported that they had flexible working times, defined as being able to vary their start and finish times when necessary. These results suggest that Australian women able to access part-time employment and flexible working conditions are more likely to resume employment following birth. Consistent with previous research, this study also found that better educated women were more likely to resume employment. As disproportionately more managers and professionals were employed during their child's infancy than clerical, sales or service workers, it seems that flexible employment options are concentrated inequitably in high status occupations. Employment options for mothers of infants employed in more menial, lower status options may be more restricted, but this has not been adequately investigated.

### **1.2.3.3 Access to Non-Parental Child Care**

Within the existing literature, lack of access to non-parental childcare has been conceptualised as a potential barrier to paid employment for mothers of young



children. Economic analyses of the cost of non-parental care have assumed that the expense of childcare reduces the net financial benefit for mothers of paid employment, and thus provides a disincentive to labour force participation. Nationally representative data analyses from the United States (Barrow, 1999b; Baum, 2002; Blau & Robins, 1989; Leibowitz et al., 1992) demonstrate that the cost of childcare is a moderate predictor of maternal employment following childbirth. Women earning higher wages, and with less child care costs are more likely to resume employment after the birth than women earning lower wages. Similar analyses are rarely conducted on fathers' workforce participation, entrenching the belief that childcare is mothers' responsibility, rather than a shared concern.

Several Australian studies have investigated the impact of the financial cost of non-parental care on mothers' employment for all mothers of dependent children, summarised in Table 1.11. Few studies have focussed exclusively on the year following birth.

**Table 1.11 Australian studies investigating the relationship between non-parental child care characteristics and maternal employment participation**

Authors Date	Sample	Aims and Study Design	Main findings
(Doiron & Kalb, 2005)	Secondary analysis of ABS 1996 Child Care Survey, representative national survey of families with child(ren) < 12 years, >11,000 children	Cross-sectional analysis of contribution of child-care costs to parental participation in labour market	<ul style="list-style-type: none"> <li>• cost of childcare association with mothers, but not fathers employment participation</li> <li>• increased child care costs associated with lower likelihood mothers participate in employment</li> </ul>
(Rammohan & Whelan, 2005, 2007)	Subsample of HILDA* 2002 survey, random representative national survey of households, mothers included in this study if partnered, with child <15 yrs, n=1300	Investigated relationship between maternal employment decisions and financial costs of non-parental childcare	<ul style="list-style-type: none"> <li>• childcare costs highest for families with child(ren) less than 4 yrs</li> <li>• childcare costs not associated with employment participation wither full-time or part-time, and no association with number of hours employed each week</li> </ul>

\*Household, Income and Labour Dynamics Survey (Weston & Wooden, 2002)

Using data from the 1996 Child Care Survey, a representative survey conducted by the ABS of over 11,000 mothers of children less than twelve years of age, Doiron and Kalb (2005) examined the effect of an increase in the cost of childcare on maternal

labour supply. Increases in the cost of childcare for households normally occur when mothers' employment hours increase, when the actual price of formal childcare increases, or when families increase the proportion of formal care that they are using, rather than informal or familial care that is normally provided at no cost. Doiron and Kalb (2005) found that such an increase in the price of childcare was associated with a reduction in both married and un-partnered mothers employment participation, although to a smaller degree than reported in other comparable OECD countries. No similar effect was found on men's employment participation.

Conversely a more recent study found no effect of the cost of childcare on maternal employment using data generated from the *Household Income and Labour Dynamics Survey* (HILDA), a repeat-wave survey of a random representative sample of over 7600 Australian households (Weston & Wooden, 2002, 2003). This study used HILDA Wave 2 data, collected in 2002, and extracted a sample of 1300 married women with children of less than 15 years of age, but excluded sole mothers for whom the effect of child care cost might be assumed to be a greater barrier to employment. Results found that the highest child care costs were for families with children less than 4 years of age, but that this did not affect participation in employment, or the number of hours mothers worked each week (Rammohan & Whelan, 2005). These results were confirmed in a subsequent analysis of HILDA data, examining the relationship between childcare cost and full-time and part-time employment separately (Rammohan & Whelan, 2007). The authors conclude that the cost of childcare is therefore relatively insignificant in mothers' decisions about paid employment, and further, conclude that the government provision of affordable childcare will have limited impact on mothers' employment participation rates. This may be true for married mothers, but the authors do not acknowledge that the factors associated with employment might be different for un-partnered mothers, and it is inappropriate to generalise from their sample of married mothers.

The mixed results reported above suggest that measuring the direct effect of the cost of childcare on women's workforce participation is an imperfect means of conceptualising the way in which families make decisions about paid work and

childcare use. Several studies have attempted to look more broadly at childcare as a putative determinant of maternal employment participation, although again, few studies focus on mothers with an infant child less than one year of age.

Analyses of data from the ongoing *Longitudinal Study of Australian Children* (LSAC) and HILDA have found that the type of care parents use – either formal or informal (see section 1.1.4) – is strongly related to household income. Families with greater income are more likely to utilise formal childcare provided in the private sector (Harrison & Ungerer, 2005; Tesfaghiorghis, 2004) (see Table 1.5). This suggests that families with lower income may be less able to access to formal childcare, and are therefore dependent on care provided informally by friends and relatives. Women without available family or social support to care for their children are unable to participate in paid employment, and this may in turn entrench financial disadvantage (Samson, 2002). Further analyses of HILDA data have demonstrated that of the families in the study that have used or considered using childcare for their children aged less than fifteen years, 17% of couple families and 21% of lone parent families had experienced multiple problems with accessing childcare. These problems included finding appropriate care for a sick child, the high cost of childcare providing a barrier to utilisation, concerns about the quality of the care available and accessing the hours of care required (Cassells, McNamara, Lloyd, & Harding, 2005; Fisher, 2002; Tesfaghiorghis, 2004). Aggregated data from several ABS Labour Force surveys describing family characteristics, and characteristics of those not currently in the labour force found that of all Australian mothers of children aged 0-2 years, over 13% of these mothers would work if they could obtain childcare (House Standing Committee on Family and Human Services, 2006).

Taken together, the above results suggest that there are still substantial and widespread difficulties for families accessing and affording childcare in Australia and this does indeed create a barrier to paid employment, only part of which is attributable to the direct cost of non-parental care. Whether similar concerns about childcare determine mothers' employment participation following childbirth is unknown. It is likely that decisions about the type of non-parental care parents use for a young child

are made by considering a range of factors of which cost is only one aspect, including concern for the baby, and the maternal experience of being separated from her baby during employment hours. The relative contribution of childcare related variables on maternal employment in families with an infant of less than one year of age has yet to be systematically investigated.

Emerging Australian evidence suggests that there are multiple reasons for women's employment resumption following childbirth, and it is likely that preferences interact with financial imperatives and job-related entitlements and conditions. Existing Australian and international research has identified several maternal characteristics associated with an increased likelihood of postnatal employment participation including older maternal age, higher educational attainment and higher occupational status. However, it is likely that a broader range of factors influence maternal employment decisions in the postpartum, including the developing mother-infant relationship and maternal concern about separation from her infant, the amount and division of unpaid domestic work, maternal physical health and emotional well-being, infant behaviour, breastfeeding and the availability of suitable non-parental childcare. The contribution of these factors to mothers' postnatal re-entry into the labour force, or of their decision to postpone paid work, has not been investigated systematically in a representative sample of Australian women.

The marked increase in women's workforce participation in recent decades has meant that most (80%) Australian women are currently employed during a first pregnancy (Baxter, 2005a). Decisions about postnatal employment and infant care are part of the transition and adjustment to motherhood for most Australian women. Increasingly, it is understood that maternal mental health and well-being across the transition to motherhood is influenced by social determinants, including structural, personal and familial circumstances. It is plausible that employment factors are a relevant aspect of women's social context, shaping their psychological adjustment and mental health in pregnancy and the postpartum.

# CHAPTER 2 PERINATAL MENTAL HEALTH

Mental health and psychological well-being are currently regarded as being more than the absence of mental illness. The World Health Organization (WHO) defines optimal overall health as “..a state of complete physical, mental and social well-being, and not merely the absence of disease”. More specifically, mental health is defined as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community” (WHO,2005; p. 265).

This definition allows for a broad understanding of the factors that can contribute to, and adversely affect, mental health. It is now established that a range of social, structural, and personal factors determine mental health, including the ability to adjust to new life circumstances (Chen, Subramanian, Acevedo-Garcia, & Kawachi, 2005). Herrman (2001, p. 710), for example, describes mental health as “the ability of people to think and learn and the ability to understand and live with their own emotions and the actions of others”.

The birth of an infant is universally recognised as a major life transition. Adjustment to mothering, particularly for women having a first baby, involves a shift in individual self-image and developing a self-concept as a mother; forging a relationship with the foetus and then the baby; developing skills to meet the practical demands of infant care; learning how to respond to the emotional needs of the baby; and an occupational shift from the paid to the unpaid workforce accompanied by a dramatic increase in the unpaid workload. Simultaneously, women experience, at least in the short-term, greatly reduced independence and freedom, and a degree of social isolation.

Women’s mental health and well-being during pregnancy and following childbirth have been conceptualised, investigated and characterised across a range of disciplines

including psychiatry, psychology, sociology and feminist theory. Gradually, the focus of thinking and research has evolved from seeking to identify a single cause for postnatal mental illness, to understanding that mental health is determined by multiple, interacting factors (Stoppard, 2000, p. 10). The biopsychosocial approach, described by Engel, refers to the concept that illness is caused by the interaction of psychological, biological, and social factors (Engel, 1997), refuting the traditional medical view that illness and treatment are reliant exclusively on biological causes. Conceptualisation and investigation of the factors influencing women's mental health, can be broadly characterised as psychological, biological and social factors.

## **2.1 EARLY CONCEPTUALISATIONS OF MATERNAL MENTAL HEALTH**

### **2.1.1 Development of the 'psychology of women'**

Throughout the twentieth century, psychoanalytic theory was the predominant conceptualisation by which the 'psychology of women' was understood. Founded by Freud (1905), and furthered by Deutsch (1945), Bibring (1959; 1961) and Benedek (1970b), psychoanalytic theory was predicated on a belief in the unconscious, not normally accessible by the conscious mind, that underpinned personality and behaviour. Freud argued that the unconscious, as the receptacle for repressed desires, needs, memories and experiences that were too painful to be held in conscious thought, existed from birth, and was shaped during the early years of life during universal, gender-based stages of sexual development. Psychoanalytic thinking upheld that psychological differences between women and men were absolute, and generated from anatomical and biological differences. Freud's theories were developed from his own therapeutic self-analysis and case studies of patients, and subsequently generalised to expound a unifying theory of personality and development (Denmark, Klara, Baron, & Cambareri-Fernandez, 2007).

Given the emphasis Freud placed on gender as a determinant of psychological functioning, the psychology of women necessitated its own explication, one that was based on inherent difference from a male norm (Oakley, 1980, p. 66). Freud's theory

of women was a developmental account of psychological maturation, one in which the achievement of a normative passive femininity was synonymous with sexual maturation. Freud believed that the key motivation and organising principle for women's psychology was the recognition of genital difference in early childhood, and women's recognition of their inferiority, experienced as 'penis envy' (Freud, 1925, p. 17). This set in motion a constellation of mental processes organised around resolving inferiority associated with their imagined castration (Breen, 1993, p. 2). The maturational process occurred throughout childhood and adolescence via a number of stages, including experiencing an inferiority complex, followed by affection and then hostility, first for their mother, then their father. In puberty, girls repressed their desire for an active masculine identity, and this yielded space for the development of a passive, feminine identity. Femininity was finally achieved when women's desire was translated into the desire for motherhood, the ultimate goal of female sexual development (Freud, 1925).

Freud also believed in the influence of women's sexual function on their nature and psychology (Chodorow, 1994, p. 8). Freud's theories held women as inferior, less morally mature and he promoted homogenous, prescribed ideas of femininity, destined for and fulfilled only by the private realm of reproduction, rather than the public cultural domain (Denmark et al., 2007; Lerman, 1986; Paludi, 1992, p.82). It is of note that psychoanalytic ideas gained currency precisely when women were agitating for universal suffrage in the early twentieth century, and were entirely commensurate with maintaining the cultural status quo, including prescribing appropriate behaviours and interests for women and limiting their participation in public life (Astbury, 1996, p. 51).

Freud located women's distress and depressive symptoms as arising from their own inherent, biologically determined female nature, in particular, unresolved internal psychic conflicts pertaining to maturational development (Freud, 1905). Mental health problems or "neuroses" were described by Freud as a means of managing sexual drives and fears, unmet sexual desires, sexual problems or fantasies that had been repressed earlier in life, only to resurface and give rise to psychic and somatic

symptoms (Freud, 1920, p. 337). The aetiology of neurosis was therefore internal, and there was “no interaction between neuroses and reality” (Wolheim, 1991, p. 135).

The concept of the ‘neurotic woman’ was born, a prisoner to her own fantasies and misguided beliefs, whose distress is regarded as a symptom of a disordered psyche (Astbury, 1996, p. p.141). In this way, psychoanalytic theory excluded any consideration of social and material circumstances from the psychological development, focussing wholly on addressing women’s ‘failure’ to adapt to their circumstances (Astbury, 1996, p. 134). Psychopathology therefore was regarded as a consequence of women’s internal psychic reality, characterised as immature, conflicted and maladjusted, rather than as a consequence of adverse, unsupportive or even abusive circumstances. Women’s mental illness was conceptualised as distinct from contextual or structural examination, and women’s psychological distress was considered pathological (Lerman, 1986, p. 67; Paludi, 1992).

Deutsch (1945), a protégé of Freud’s, adhered strictly to these ideas in exploring the psychology of motherhood based on her own psychoanalytic treatment and case studies of female patients. Deutsch (1925, p. 176) assumed, like Freud, that motherhood was the only route to maturation for women, and parturition was regarded by her as the final outcome of a lifelong struggle towards a prescribed feminine identity. Deutsch conceptualised the psychic atmosphere of motherhood as universally fulfilling, characterised by selfless, boundless altruism, for which the only compensation is maternal joy in her own product – the infant. In her therapeutic practice, Deutsch described women who were unable to experience this joy, and who express fear, anxiety and “danger” in their adjustment from pregnancy to early motherhood (1945, p. 287). These women, Deutsch concludes, are overwhelmed with neurotic conflicts, and these conflicts were understood to produce both psychological and physical sequelae.

Early understandings of psychological functioning, and psychological disorder were based on individual case studies and descriptions, and clinical opinion, such as those presented by Freud and Deutsch. Prior to the broad application of scientific research methodology and the utilisation of more rigorous, objective measures assessed in



groups rather than individuals, these case observations stood as evidence, and were inappropriately generalised to the whole population. Several authors have noted that, in spite of this methodological shortcoming, the ascendancy and tenacity of this belief that women's own psyches create their distress, unmediated by life circumstances, cannot be underestimated (Astbury, 1996; Birns & ben-Ner, 1988; Oakley, 1979).

### **2.1.2 The psychoanalytic legacy and maternal mental health**

According to Oakley (1980, p.53), the legacy of psychoanalytic and psychodynamic thinking persists in the two main theories about the underlying aetiology of women's mental illness during early motherhood – first that it is born of intra-psychic conflict, a symptom of 'neurotic' personality and second that it is hormonally and biologically determined.

#### **2.1.2.1 Intra-psychic conflict and maternal well-being**

Several developments from Freud's theories focussed on women's psychosexual development in general, and studied the psychological experience of women during pregnancy and childbirth. Deutsch (1945), Bibring (1959; 1961) and Benedek (1970a, 1970b) were all influenced by the psychoanalytic idea that for women, motherhood was biologically inevitable, natural, and the only pre-determined route to satisfaction and psychological maturity. Women's drive for motherhood was understood as biologically determined, and the "primary organizer of women's sexual drive" which in turn gave rise to the feminine personality (1970b, p. 139).

These early theorists sustained the orthodox psychoanalytic idea that women's psychological and physical reality were inextricably intertwined. Deutsch stated that the "psychosomatic interdependence of psychologic and physiologic processes" peaks for women during reproductive activity, so that psychic conflicts result in physical pathology (Deutsch, 1945, p. preface). For example, she ascribed a woman's postnatal lactation difficulties to existing maternal ambivalence towards the child. (Deutsch, 1925).

These ideas have been notably persistent in investigations of women's mental health during pregnancy and following birth. Informed by psychoanalytic concepts, studies

in the 1950's, 1960's, 1970's and as recently as the 1980's have purported to investigate the relationship between maternal psychological factors, including maternal anxiety, stress and personality attributes, to obstetric outcomes such as low birth weight, premature birth and complications of labour and delivery. These studies are summarised in Table 2.1.

**Table 2.1 Studies of maternal mental health and obstetric outcomes**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measure s</b>	<b>Main Findings</b>
(Cramond, 1954)  England	50 women who had experienced "uterine dysfunction" in labour and 50 women who had experienced normal labour	Investigating influence of psychological causes on course of labour	Clinical assessmt. during interview in first week after birth	<ul style="list-style-type: none"> <li>Identified aspects of a dysfunctional personality, concealing outward expressions of anxiety, yet reporting more physical symptoms. This was more prevalent in "uterine dysfunction" group (51%) than in control group (12%)</li> </ul>
(Davids, De Vault, & Talmadge, 1961)  USA	48 pregnant women, recruited from a single maternity hospital	Relationship between maternal anxiety in pregnancy and obstetric outcomes	MAS <sup>1</sup>	<ul style="list-style-type: none"> <li>Labour and birth rated as "normal" or "abnormal" by delivery room staff (not blinded).</li> <li>Higher anxiety in women whose labour rated "abnormal"</li> </ul>
(Ringrose, 1961)  USA	Sample of 41 young, unmarried women residing in a hostel for unmarried mothers	Assessing the psychosomatic component in the pathogenesis of pregnancy toxemia	MMPI <sup>2</sup>	<ul style="list-style-type: none"> <li>Abnormal personality traits identified in 6 of the 8 women who had toxemia</li> <li>Attributed direct cause to personality "decompensation"</li> </ul>
(McDonald, Gynther, & Christakos, 1963)  USA	Convenience sample of 60 Caucasian women, recruited from single obstetric clinic	Investigate the relationship between maternal anxiety and obstetric outcomes from third trimester	MMPI <sup>2</sup>	<ul style="list-style-type: none"> <li>Women classified into normal or abnormal obstetric outcome (n=44) by blinded assessor</li> <li>Significantly higher anxiety in group experiencing complications</li> </ul>
(Lederman, Lederman, Work, & McCann, 1979)  USA	Sample of 32 married women, nulliparous, invited to participate in pregnancy, no further detail about recruitment	Investigate relationship between psychological variables in pregnancy and progress of labour	STAI <sup>3</sup>	<ul style="list-style-type: none"> <li>longer labour correlated with anxiety (<math>r = 0.39</math>), and longer in women with history of psychiatric problems, or psychiatric counselling.</li> <li>Authors conclude that association is predictive.</li> </ul>
(Norbeck & Tilden, 1983)  USA	117 women receiving antenatal care in tertiary obstetric hospital invited to participate, 84% agreed	Examine effect of anxiety, depression on gestational difficulties, infant complications and labour / delivery complications	LES <sup>4</sup> STAI <sup>3</sup> DACL <sup>5</sup>	<ul style="list-style-type: none"> <li>more life stress and less available social support associated with more pregnancy complications</li> <li>little variance (&lt;5%) in overall pregnancy complications accounted for by life-stress, depression and anxiety</li> </ul>

(Perkin, Bland, Peacock, & Anderson, 1993) UK	Consecutive sample 1515 of Caucasian pregnant women recruited from antenatal booking clinic at one tertiary hospital	Prospective study of the relationship between anxiety and depression, and obstetric outcomes from second trimester to birth	GHQ <sup>6</sup>	<ul style="list-style-type: none"> <li>• Depression made no contribution to any of the obstetric outcomes included: labour onset, preterm delivery, use of analgesia, delivery method</li> <li>• Anxiety weak association (0.1%) of variance to use of anaesthesia in labour</li> </ul>
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1. Manifest Anxiety Scale (Taylor, 1953)
2. Minnesota Multiphasic Personality Inventory (Leary, 1956)
3. State Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970)
4. Life Experiences Survey (Sarason, Johnson, & Siegel, 1978)
5. Depression Adjective Checklist (Lubin, 1965)
6. General Health Questionnaire (D. Goldberg, 1972)

The prevailing assumption characterising the conceptualisation of these studies is that there is a psychological cause for a wide array of pregnancy and obstetric complications. Associations observed in these studies were inappropriately interpreted as unidirectional, causal relationships between maternal psychological dysfunction and adverse obstetric events, indicative of the strong influence of psychoanalytic theories. The notable limitation, however, was that obstetric outcomes were recorded and then retrospective attributions of maternal psychological functioning were made once obstetric events had occurred. Maternal anxiety in particular was thought to influence length of labour, the function of the uterus in labour, and the well-being of the infant at birth (Davids et al., 1961; Lederman et al., 1979; McDonald et al., 1963; Norbeck & Tilden, 1983). In Davids et al. (1961) study, obstetric outcomes were classified according to the opinion of obstetric staff as “normal” or abnormal”, rather than against observable criteria. Furthermore, it was not reported that the delivery room staff were blinded to the women’s pregnancy anxiety symptoms, so may this may have influenced their view of obstetric outcomes. Aspects of women’s personality, including psychosexual development and rejection or ambivalence about motherhood were also regarded as a cause of “uterine dysfunction” during labour, pregnancy toxemia and a broad range of difficulties in labour such as transverse or breech presentation, prolonged or precipitate labour, and the use of analgesia or anaesthetic (Cramond, 1954; McDonald & Parham, 1964; Ringrose, 1961).

Early in the development of the increasing scientific rigour applied to contemporary clinical and community studies, this body of research was characterised by

methodological flaws. In Cramond's (1954) study, labour was classified as "dysfunctional" according to clinical opinion of the obstetric staff, and no replicable, observable criteria were listed against which labour was classified. Although these studies were based on groups of women rather than individual case reports, sampling methods were either by convenience (Davids et al., 1961; Lederman et al., 1979; McDonald et al., 1963; Norbeck & Tilden, 1983), or selected from non-representative biased samples, such as groups of young unmarried mothers (Ringrose, 1961). Prior to the widespread use of multivariate techniques of statistical analysis, few studies included other putative independent variables that may have accounted for either maternal psychological functioning or obstetric outcome. The focus of this literature was to elaborate the largely uncontested assumption that maternal intra-psycho conflict about motherhood, and maternal anxiety would have adverse effects on pregnancy, labour and birth.

More recent, methodologically robust investigations have failed to ascertain a relationship between maternal psychological distress and obstetric complications. Perkins et al. (1993), in a prospective investigation, found no relationship between maternal depression in pregnancy and adverse obstetric outcomes including induction of labour, prolonged labour, instrumental or caesarean birth, preterm birth or use of analgesia during labour. A weak association was found between maternal anxiety and use of analgesia in labour. In spite of assessing depression, anxiety and maternal personality traits including neuroticism and psychoticism on standardised assessments, Perkins et al. conclude that they could not identify maternal psychological characteristics that were predictive factors of obstetric complications and argue that while maternal depression and anxiety are undesirable outcomes, they have little bearing on obstetric complications.

Psychodynamic approaches to maternal psychological well-being have been similarly informed by psychoanalytic theories. Psychodynamic theories suggest that psychological reorganisation, development and maturation occur through responses to crises and life transitions, including pregnancy and the birth of a child (Nadelson, Notman, & Ellis, 1983). The psychodynamic approaches of Benedek (1970b), Bibring

(1959; 1961) and Breen (1975) favoured the view that pregnancy and motherhood were developmental crises necessary to the achievement of pre-destined feminine maturity. The work of these authors is summarised in Table 2.2.

**Table 2.2 Summary of psychodynamic descriptions of pregnancy and motherhood**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main Findings</b>
(Bibring, 1959; Bibring et al., 1961) USA	15 primiparous women, presenting for antenatal care at a maternity hospital	To investigate prospectively the normal psychological processes of pregnancy, describing maturational crises.	Interviews, observation by clinicians on 5 occasions in pregnancy and after birth	<ul style="list-style-type: none"> <li>• Pregnancy is a period of crisis, psychological changes accompanying somatic events, intra-psychic reorganisation</li> <li>• Crises are re-emergence of unresolved past conflicts, and their outcomes determines mastery of new motherhood</li> <li>• resolution is maturation, failure to resolve reaches a neurotic solution</li> </ul>
(Benedek, 1970b) USA	Clinical opinion and experience gained in author's practice as a psychotherapist	To describe the "psychobiology" of pregnancy and early motherhood		<ul style="list-style-type: none"> <li>• Pregnancy as maturational crisis requiring psychologic adaptations</li> <li>• Characterised by organising drive for mature feminine identity and emotional disequilibrium</li> <li>• If women's psychosexual organisation is conflicted about motherhood, psychological disturbance occurs</li> </ul>
(Breen, 1975) USA	50 nulliparous women, married middle-class booked for antenatal care in one hospital setting; comparison group of married women, similar age <35 years, no children	To investigate the psychological processes of adaptation to pregnancy and early motherhood	Interviews with women early and late pregnancy, and following birth, range of projective tests	<ul style="list-style-type: none"> <li>• Identified 'adaptive' and 'maladaptive' women by the presence or absence of psychological symptoms</li> <li>• Some anxiety present for women who were "working through" the psychological upheaval of pregnancy</li> <li>• Maladaptive behaviour ascribed to women's internal fixed/ idealistic views of femininity and motherhood</li> </ul>

Bibring's work was based on intense, focussed clinical observation of 15 pregnant women, and her findings were reached by opinion and consensus of clinical staff using methods that were subjective, and could not be replicated in other studies.

Benedek's theories were developed via patients attending her own psychotherapeutic practice and Breen's on convenience sample of 50 pregnant women. The conclusions of these authors are hampered by their methodology, based on anecdotal evidence from small, clinical samples yet have been inappropriately generalised and described by the authors as representing the universal experience of pregnancy and motherhood.

These authors describe the maturational crises provoked by pregnancy and motherhood, and the accompanying psychological disequilibrium resulting from hormonal changes, intra-psychic reorganisation and the management of re-emerging psychic conflict that had been repressed or insufficiently integrated in the past (Bibring, 1959; Benedek, 1970b). "Well-adjusted" mothers, those with no psychological symptoms, were considered to have mastered the psychological reorganisation required to proceed to the normal, expected life-stage of motherhood (Breen, 1975, p. 191). Conversely, women who were unable to adapt during the reappraisal of self inherent in becoming a mother were regarded as reaching neurotic or even psychotic solutions (Bibring, 1959).

Both Benedek (1970b, p.143) and Bibring (1961) made cursory acknowledgement that women's psychological adjustment during childbearing could be influenced by women's life circumstances, and partner and family relationships. However, the primary focus of these case reports remains on scrutinising women's individual capacity for 'adjustment' to the 'natural' task of motherhood. These authors assume that women's psychological well-being is determined by the successful resolution of early intra-psychic conflict, and that life circumstances are irrelevant to these governing processes. In this framework, postpartum depression, for example is regarded as a symptom of unresolved internal conflicts about motherhood and the prescribed feminine role (Hopkins, Marcus, & Campbell, 1984; Nadelson et al., 1983). There is no accompanying acknowledgement that women need also adjust to a range of life changes surrounding the birth of a baby including the demands of unpaid labour and infant care, renegotiation of partner and family relationships and developing a relationship with the infant.

### 2.1.2.2 Studies of hormonal factors and maternal mental health

The belief that women’s psychology is biologically, anatomically and hormonally governed has been a persistent, pervasive and influential tenet of psychology, psychiatry and obstetrics. Women’s emotional disturbance - ‘neuroticism’ - has long been considered to give rise to somatic complaints (Benedek, 1970b; Deutsch, 1945) and obstetric complications (Istvan, 1986), and the corollary to this is that women’s psychological distress has been considered to be the effect of intrinsic biological, hormonal causes. Much of the literature investigating women’s postpartum well-being expected that psychological sequelae will emanate from the dramatic withdrawal of placental hormones occurring immediately following birth. Table 2.3 presents a summary of studies investigating the relationship between maternal mood and biological and hormonal factors using standardised, published assessments of maternal mood.

**Table 2.3 Studies investigating the relationship between hormonal factors and maternal mental health**

Authors Date Country	Sample	Aims and Study Design	Measures	Main Findings
(Nott, Franklin, Armitage, & Gelder, 1976)  UK	27 married women booked for delivery at one antenatal hospital setting, excluded if previous psychiatric history, marital or financial difficulties	Prospective study of relationship between hormone changes and postpartum emotional disturbance, 3 pregnancy and 16 postpartum assessments	EPI <sup>1</sup> LMS <sup>2</sup>	<ul style="list-style-type: none"> <li>• No correlation between emotional lability and hormonal changes in the 5-10 weeks postpartum</li> <li>• Compared women as to whether their worst mood was reported in the first 10 days postpartum (“blues”), or after this period</li> <li>• No hormonal differences between groups detected</li> </ul>
(Harris, Huckle, Thomas, Johns, & Fung, 1989)  UK	Convenience sample of 132 women, recruited at booking in antenatal clinic in one hospital site	Cross-sectional investigation of relationship between steroid and prolactin levels and maternal mood at 6-8 weeks postpartum	EPDS <sup>3</sup> RSD <sup>4</sup> MADRS <sup>5</sup>	<ul style="list-style-type: none"> <li>• No differences in cortisol between non-depressed and probably depressed women</li> <li>• 15% women probable depression at 6-8 weeks (ie: above cut-off on all 3 measures)</li> <li>• Weak association between depressed mood and higher progesterone in non-breastfeeding mothers</li> </ul>
(R. Smith et al., 1990)	97 women, first birth recruited from two major obstetric hospitals in	Prospective study of relationship between mood changes, hormonal	PoMS <sup>6</sup> MADRS <sup>5</sup>	<ul style="list-style-type: none"> <li>• No hormonal relationship when “mood improved” group (from 38 w gestation to two days postpartum) to “mood</li> </ul>

Australia	antenatal classes and at midwife appointments	changes and labour, birth and infant outcomes. Two pregnancy, and two postnatal assessments at 3 days and 3 months		deteriorated” group compared <ul style="list-style-type: none"> <li>• mood deteriorated group more likely to rate negative birth experience and worse antenatal mood, and worse mood at three months postpartum than “improved” group, but this independent of hormonal changes</li> </ul>
(O'Hara, Schlechte, Lewis, & Varner, 1991)  USA	182 women recruited from a public obstetric clinic and two private practices, 179 control subjects, nominated by initial pregnant sample and matched where possible	Prospective investigation of demographic, psychiatric, biological, social, obstetric and life stress variables contributing to postpartum depression, assessments in pregnancy and 9 weeks postpartum	DAS <sup>7</sup> PES <sup>8</sup> BDI <sup>9</sup> RDC <sup>10</sup> PLES <sup>11</sup>	<ul style="list-style-type: none"> <li>• no hormonal differences detected, and no differences in amount of change detected between depressed and non-depressed groups</li> <li>• postpartum depression at 9 weeks predicted by antenatal depression, stressful life events in childbearing sample when age, socio-economic status, employment and marital status controlled for</li> <li>• only lower estradiol at 36 weeks gestation and day 2 postpartum in depressed women at 9 weeks postpartum</li> </ul>

1. Eysenck Personality Inventory (Eysenck & Eysenck, 1975)
2. Lorr and McNair Scale (Lorr, Daston, & Smith, 1967)
3. Edinburgh Postnatal Depression Scale (Cox, Holden, & Sagovsky, 1987)
4. Raskin 3-Area Scale for Depression (Raskin, Sculterbrandt, & Reatig, 1970)
5. Montgomery Asperg Depression Rating Scale (Montgomery & Asberg, 1979)
6. Profile of Mood States (McNair, Lorr, & Droppleman, 1971)
7. Dyadic Adjustment Scale (Spanier, 1976)
8. Pilkonis Life Events Schedule (Pilkonis, Imber, & Rubninsky, 1985)
9. Beck Depression Inventory (A. Beck & Beck, 1972)
10. Research Diagnostic Criteria (Endicott & Spitzer, 1978)
11. Peripartum Events Scale (O'Hara, Varner, & Johnson, 1986)

The privileging of hormonal explanations for women’s psychological states is based on methodologically weak studies, sampling predominantly from small (Nott et al., 1976) or non-representative, self-selected samples of women (Harris, 1996; R. Smith et al., 1990). Together, they have found no consistent evidence for the role of hormones in the etiology of postpartum mood disturbance.

Smith et al., (1990) compared a group of women who reported improved mood from pregnancy to two days postpartum to those who reported deterioration in mood on two standardised psychometric assessments. They found no significant hormonal differences between these groups in pregnancy or following birth, but did find that women who reported deteriorated mood also had worse antenatal mood, and were more likely to have depressive symptoms at three months postpartum. Hormonal



changes were consistent between groups. Smith et al. conclude that the sustained worse mood observed in some of the sample was likely to be a reflection of predisposition and psychosocial factors rather than hormonal changes. O'Hara et al. (1991) examined the relative contribution of psychosocial, biological, obstetric factors and life stressors to postpartum mood at 9 weeks, controlling for maternal age, marital status, socio-demographic characteristics and education. They found that worse antenatal mood and stressful life events contributed to depression, diagnosed according to Spitzer's (1978) research diagnostic criteria at 9 weeks after birth. Small significant differences in estradiol were detected two days after birth in women who developed depression at 9 weeks, but notably, there were no differences in changes in hormone levels from pregnancy to the postpartum in depressed and non-depressed women.

There is an absence of consistent empirical evidence to demonstrate endogenous, physiological pathways for postpartum depression in the majority of women (Gitlin & Pasnau, 1989; Hendrick, Altshuler, & Suri, 1998; Istvan, 1986; Pope, 2000, p. 60; Scottish Intercollegiate Guidelines Network, 2002). Several authors have noted the tenacity of the perceived immutable link between women's psychology and their biology as evidence of the widely-held assumptions about women's sexual and psychological functioning grounded in psychoanalytic theories (Astbury, 1996, p. 184; Oakley, 1980, p. 54).

Several critiques of these psychoanalytically-derived approaches to women's mental health and well-being have arisen from sociologists (Oakley, 1979, 1980), psychologists (Astbury, 1996; Nicolson, 1998; Paludi, 1992) and feminist theorists (Fullagar & Gattuso, 2002; Lerman, 1986; Woollett & Marshall, 2004). Critical approaches describe the essential stereotypes of femininity, initiated by psychoanalytic theory but sustained in more recent conceptualisations of women's inherent nature, that have generated a framework wherein failure to adapt to natural motherhood is a symptom of individual pathology (Nicolson, 1998, p. 24; Oakley, 1980, p. 68; Woollett & Marshall, 2004). Nicolson (1998, p. 23) has challenged the prevailing "myth of motherhood..as unequivocally fulfilling" that assumes women are

primed to make the transition to parenthood smoothly. Women's experience of distress, anxiety, depression and loneliness for example, are viewed as personality defects, a consequence of their own flawed psychodynamic responses, that at worst lends itself to blaming women for their failure to adapt to 'normal' life events, rather than recognising the complex interaction of circumstances and psychological adjustment required in becoming a mother (Oakley, 1980, p. 68). Several investigators have attempted to challenge this by normalising women's experiences of the psychological changes accompanying new motherhood (Fisher, Feekery, & Rowe-Murray, 2002; Mauthner, 1999; Small, Brown, & Lumley, 1994b), suggesting that for all women, some psychological disequilibrium is normal and expected during this major life transition. Others have developed new theories of motherhood based on women's qualitative descriptions (Lloyd & Hawe, 2003; Rogan, Shmied, Barclay, Everitt, & Wyllie, 1997).

Pervasive ideas about the 'psychology of women' have persisted over the twentieth century, premised on psychoanalytic and psychiatric theories. The privileging of sex-based determinism and the belief in the inherent fulfilment of motherhood cemented the notion that women belonged in the private, domestic sphere rather than in public life (Barnett & Hyde, 2001). Furthermore, the sustained focus on individual pathology has precluded comprehensive investigation of the circumstances of women's lives. The de-contextualisation of mental illness in general and of women's psychological well-being during reproductive life in particular, has meant that the social determinants of women's mental health have, until relatively recently, been largely ignored.

## **2.2 CONCEPTUALISING MENTAL HEALTH AND MENTAL ILLNESS**

Women's mental health and well-being around childbirth was initially informed by psychoanalytic theories about prescribed femininity and the psychology of women. The focus has been on the identification and treatment of the symptoms of psychiatric illness against recognised case criteria, such as the DSM-IV (American Psychiatric Association, 2000). This view has more recently been challenged to include

recognition that most women will experience some psychological symptoms and emotional disequilibrium across pregnancy and childbirth, but only a few of these will develop clinically significant conditions.

### **2.2.1 Categorical conceptualisations of maternal mental health**

The emergence of scientific methods of investigation over the latter half of the twentieth century has resulted in the increasing methodological rigour, replacing the reliance on case studies and clinical reports. Representative sampling, replicable methods using validated and standardised psychometric assessments and multivariate statistical techniques have all contributed improved evidence about the nature and risk factors for poor maternal mood outcomes.

Consequently, two main non-psychotic affective, or mood, disturbances have been identified in childbearing women - the maternity 'blues', and postnatal depression (Brockington, 2004; Hopkins et al., 1984; Scottish Intercollegiate Guidelines Network, 2002). Maternity 'blues' is a common, transient mood disorder occurring in the first days following childbirth. The 'blues' are characterised by tearfulness, irritability, mood lability and anxiety and affects up to 80% of women for 3-7 days, resolving spontaneously (Brockington, 1996, p. 147; Pope, 2000, p. 6).

Depression, either occurring antenatally or in the postpartum period, has been the most common affective disorder to be investigated in childbearing women. According to clinical diagnostic criteria developed by the American Psychiatric Association (DSM-IV) (American Psychiatric Association, 2000) depression is identified by the presence of five of the following symptoms for major depression, or two for minor depression for at least two weeks: depressed mood, diminished interest and pleasure in normal activities, changes in weight and appetite, sleep disturbances, fatigue, loss of energy, feelings of worthlessness or guilt, disturbed concentration, and thoughts of death. Additions or qualifications to these symptoms specific to the postnatal period have been added to identify the experience of postnatal depression, for example: sleep disturbance unrelated to infant's needs, negative morbid or obsessive thoughts, and thoughts of harm to self or baby (American Psychiatric Association, 2000, p. 422). There has been ongoing debate as to whether depression occurring during pregnancy

or following birth is distinct from depression occurring at other life stages (Evans, Heron, Francomb, Oke, & Golding, 2001; Whiffen, 1992). The DSM-*IV*TR includes a post-partum onset specifier, characterising postpartum depression as occurring within four weeks of childbirth (American Psychiatric Association, 2000, p. 422).

While much of the research literature has focussed on characterising postpartum depression, more recently, several authors have drawn attention to the relevance of anxiety symptoms in the perinatal period (Britton, 2008; Heron et al., 2004; Matthey, Barnett, Howie, & Kavanagh, 2003; Miller, Pallant, & Negri, 2006; Rowe, Fisher, & Loh, 2008). “Anxiety” refers to a collection of symptoms including restlessness, agitation, difficulties with concentration, irritability, muscle tension, sleep disturbance and apprehension (American Psychiatric Association, 1994). There is a degree of adaptive anxiety commonly associated with life transitions, and this is particularly so during reproductive life where concerns about foetal and infant health are combined with new responsibilities, changing relationships and the physical demands of pregnancy and birth (Leifer, 1980; Pope, 2000). However, persistent anxiety that is unable to be relieved or controlled is potentially debilitating. Anxiety disorders in childbearing women have been relatively under-investigated compared to depressive disorders as anxiety often co-exists with depressive symptoms (Matthey et al., 2003; Rowe et al., 2008).

Influenced by medical and psychiatric conceptualisations, women’s mental health during reproductive life has been conceptualised predominantly in a categorical, dichotomous manner. Those with sufficient symptoms to meet the case definition of a psychiatric illness are categorised as ill, and the remainder are implicitly regarded as symptom-free, and therefore well. Mental health, within this framework, is simply the absence of mental illness, rather than the broad definition currently promoted by WHO (2005). However, according to Brockington (2004) this view is an oversimplification of the range of mood states experienced by women during pregnancy and the postpartum. It sets up a false distinction between “normal” experiences and pathological illnesses (Oakley, 1980, p. 69), and forecloses the investigation of the range of common psychological changes experienced during

major life transitions such as the birth of an infant. Further, as Stoppard notes (2000, p. 31), the criteria for diagnosing mental illness such as those used in the DSM-IV for example, focus on the individual's cognitive, affective and physical symptoms. Their experience of these symptoms, however, is de-contextualised in the interest of ascertaining pathology.

### **2.2.2 Broader conceptualisations of maternal mental health**

Whilst six out of seven women will not meet the criteria for major or minor depression during childbearing, many will experience significant mood disturbance such as distress, misery, fatigue, worry, tension, irritability, grief, confusion and unhappiness. The degree to which psychological upheaval is expected as a normal response to a major transition such as childbirth is subject to continuing debate (Woollett & Marshall, 2004). Predominantly however, research investigating women's mental health during reproductive life has been conceptualised on identifying risk and protective factors that contribute to individual women meeting case definitions for mental illness, such as depression and less commonly, anxiety.

Some authors have argued for a broader, more nuanced conceptualisation of women's well-being to include a range of variation in mood states, not all of which meet current clinical or diagnostic criteria (J Fisher et al., 2002; Green, 1998). As Green argues, women who are classified as "not depressed" for example, are emotionally and psychologically diverse, occupying a range of emotional states "from the euphoric to the very miserable, with a continuum in between" (Green, 1998: p145). However, in typical studies of maternal mood and well-being, those not meeting the criteria for depression, for example, are assumed to be symptom free (J Fisher et al., 2002; Oakley, 1980, p. 69; Stoppard, 2000, p. 11). Fisher (2002) proposes a conceptualisation that describes women's well-being as distributed on a continuum ranging from very mild distress to severe, psychological disturbance, to characterise accurately the nature and occurrence of negative mood states throughout reproductive life.

Furthermore, several investigators have drawn attention to the salience of psychological variations and mood states in reproductive life other than postnatal

depression (Britton, 2008; Fisher et al., 2002; Heron et al., 2004; R. Miller et al., 2006; Rowe et al., 2008). Recognition of women's heightened risk for depressive disorder during the perinatal period has been important to improve diagnosis, treatment and intervention. However, "postnatal depression" has since become an umbrella term for a range of perinatal mood states (Matthey et al., 2003; Miller et al., 2006; Rowe et al., 2008), at the expense of rigorous investigation and accurate understanding and treatment of other common mental health outcomes. Anxiety (Britton, 2008; Heron et al., 2004; Matthey et al., 2003; R. Miller et al., 2006; Rowe et al., 2008), stress (Miller et al., 2006), fatigue and vital exhaustion (Fisher et al., 2002), and sadness (Green, 1998) have been identified as relevant yet under-investigated characteristics of sub-optimal well-being during pregnancy and postpartum. Further research is needed about these and other mood variations such as confusion, anger, tension, irritability and worry to improve understanding of the range of mood states salient to women's ante- and postnatal well-being.

### **2.2.3 The influence of social determinants on women's mental health**

Categorical conceptualisations of women's mental health during reproductive life have traditionally focussed on the 'biological', including single-cause, biologically-based determinants for mental health disturbance, such as the withdrawal of placental hormones following childbirth (Chen et al., 2005). Drawn from the psychoanalytic theories of intra-psychic conflict determining mental health, differences in postnatal mental health outcomes have also been attributed to the 'psychological', including women's inherent personality differences such as coping style, self-esteem, optimism and negative cognitive style (O'Hara, Neunaber, & Zekoski, 1984; Warner, Appleby, Whitton, & Faragher, 1996). However, neither of these explanations have sufficiently predicted differences in women's mental health and psychological well-being following birth. This indicates that the biological and the psychological factors alone are inadequate explanatory factors for maternal psychological functioning.

Within a biopsychosocial framework (Engel, 1997), mental health outcomes are also attributable to a range of factors described as 'social', including current circumstances, peer and family support, and broad cultural and structural factors that

shape individual's daily lived experience. Importantly, this model posits that social influences including structural, legislative, institutional and social characteristics are of equal salience to mental health outcomes as personal and psychological characteristics have long been assumed to be. The biopsychosocial model of mental health encompasses risk factors that contribute to worse mental health and preventative factors that can act to protect against adverse outcomes.

Operationalising a biopsychosocial approach, Chen et al. (2005) conducted one of the first studies to investigate the joint contribution of contextual and structural indicators of women's social status, and individual characteristics, to mental health outcomes in women aged between 17-40 years, with children aged 26-48 months. They compared, on a state by state basis in the United States of America, depression scores on the Centre for Epidemiological Studies – Depression Scale (Radloff, 1977) in a sample of nearly 8000 women, drawn from a nationally representative cohort of new mothers, nested within all fifty states. Women's structural and gender-based status in each state was assessed on four composite indices: "political participation" including voter registration and proportion of women elected to official positions; "employment status and income" relative to men's; "economic autonomy" such as having independent health insurance, high educational attainment, and proportion of women above the official poverty level; and access to "reproductive rights" including publicly funded and legislatively protected abortion services, and state mandated public coverage for contraception. Each of these indices in each state was given a score, with higher scores indicating more autonomy and higher status for women residing in that state. These state-level scores were then included in the data analysis, along with other maternal characteristics known to be associated with women's mental health such as age, marital status, educational attainment, income and ethnicity to understand the relative contribution of contextual and state-level structural characteristics to individual women's depressive symptoms.

Chen et al. (2005) found that, after adjusting for individual socio-demographic characteristics, strong associations were observed between all of the indices of women's status, excepting political participation, and women's depressive symptoms.

For the “economic autonomy” and “employment and earnings” indices, an inverse gradient effect was observed, with increments of increasing economic autonomy and employment status independently contributing to decreases in depression symptoms.

The authors acknowledge that association cannot be interpreted as cause in this study, but argue that societal and structural, contextual factors in their study outweighed the personal characteristics normally posed as explanatory factors for women’s depressive symptoms. These authors propose a number of pathways via which this might occur. Higher wages, reproductive options supported by state funding, health insurance and equitable access to employment and income can improve women’s life opportunities, enabling a better quality of living for themselves and their families. Furthermore, a social and institutional context that protects against overt and covert discrimination is likely to protect against the adverse mental health effects of these forms of injustices. Chen et al. argue that contextual gender inequality is as important as individual characteristics in understanding the constellation of interacting circumstances that can contribute to, or adversely affect, women’s mental health. They also suggest that studies that investigate the contribution of biological or individual characteristics to depression neglect gender discrimination and sexism that generate the worse mental health outcomes observed in women compared to men. As Astbury notes, understanding of women’s supposed “proneness” to psychological morbidity is gained by questioning the notion that it is explicable by individual, intrinsic biological factors (Astbury, 1996, p. 189). Contextual circumstances, including those pertaining to partner relationship, economic, social and structural factors are now understood as salient determinants of women’s well-being across the life-course (Chen et al., 2005), including during childbearing (Boyce & Hickey, 2005; O’Hara & Swain, 1996; Pope, 2000; Scottish Intercollegiate Guidelines Network, 2002).

### **2.3 SOCIAL AND PSYCHOLOGICAL DETERMINANTS OF PERINATAL MENTAL HEALTH**

It is now understood that women’s well-being during reproductive life is more complex and nuanced than the presence or absence, for example, of postnatal depression. As well as conceptualising the spectrum of psychological morbidity,



current research has demonstrated the necessity of understanding women's mental health across the "perinatal" period. For the purposes of mental health, "perinatal" is defined as the time period encompassing pregnancy and the first year following birth (Austin, 2004).

Although antenatal well-being has received considerably less research attention than postnatal mental health, it is now understood that women's mental health antenatally is influenced by pre-existing factors, as well as by events and circumstances during pregnancy (Austin, 2004). Maternal mood disturbance during pregnancy is now thought to be at least as prevalent as that which occurs postnatally, and there is current debate as to whether "postnatal" mood disorder is indeed new postnatal morbidity, or a continuation of antenatal mood disturbance (Evans et al., 2001; Green, 1998). Reported estimates of prevalence rates of clinically significant depression and anxiety during pregnancy have ranged from 7% to 17% in prevalence studies conducted in affluent, industrialised settings (Berthiaume, David, Saucier, & Borgeat, 1998; Evans et al., 2001; Heron et al., 2004; Joseffson, Berg, Conny, & Sydsjo, 2001; Rubertsson, Wickberg, Gustavsson, & Radestad, 2005b). A distinct pattern of overall mood disturbance has been observed in several prospective studies of low mood in the first trimester, improvement in the second trimester, and then heightened distress and anxiety in the final weeks preceding birth (Evans et al., 2001; Kermode, Fisher, & Jolley, 2000).

Prospective studies of maternal mood from pregnancy and following childbirth have demonstrated a general pattern of mood improvement from the third trimester of pregnancy to the early postpartum months (Evans et al., 2001; Heron et al., 2004; Joseffson et al., 2001; Rubertsson et al., 2005b). However, some women will experience significant affective disorder, including postnatal depression and anxiety or experience less severe, but still debilitating symptoms of mood disturbance following the birth of a baby. The most often cited prevalence rate for postnatal depression in industrialised settings is that reported by O'hara and Swain (1996), who conducted a meta-analysis of over 12,000 women in 59 prevalence studies to calculate an average prevalence of 13%. However, other methodologically robust, large scale

community studies in high income countries have reported varying rates, from as low as 8% (Buist et al., 2007), to as high as 16% (Evans et al., 2001). Pooled prevalence rates from non-industrialised developing countries are estimated to be several times higher (Halbreich & Karkun, 2006).

The divergence in prevalence rates has been attributed by O'Hara et al. (1996) and Halbreich et al. (2006) to the use of different methods of ascertaining depression, and to the varied sensitivity and validity of screening and diagnostic tools across various cultural and social settings. For example, self-report psychometric instruments normally yield a higher estimated incidence of depression than diagnostic interviews, and studies undertaken at different time points in the postpartum period may also vary (Halbreich & Karkun, 2006; O'Hara & Swain, 1996). However, it is likely that the differences in reported prevalence rates within and between settings and countries is also attributable to the varying presence of social and structural adversity – poverty, gender-based violence, and discrimination - that in turn act as risk factors for worse maternal mood.

Reported prevalence of heightened anxiety or anxiety disorders in the postpartum, without co-morbid depression, assessed using standardised instruments in community samples have ranged from 16% (Matthey et al., 2003) to 32% (Britton, 2008). Rates of other psychological symptoms impacting on women's well-being in the postpartum, such as fatigue, irritability, tension and reduced clarity of thought remain under-investigated.

It is now accepted that women's mood in the perinatal period is determined by a range of interacting psychosocial factors (Beck, 2001; O'Hara & Swain, 1996; Scottish Intercollegiate Guidelines Network, 2002). Much of what is now known about maternal mood in the perinatal period has been generated from studies examining the contribution of one or several risk factors for postnatal depression specifically. Several studies have sought to investigate the nature and correlates of postnatal anxiety as a distinct psychological outcome (Britton, 2008; Heron et al., 2004; Rowe et al., 2008). Whether these same risk factors identified in studies of depression and

anxiety also contribute to other adverse mental health outcomes in the perinatal period has yet to be as comprehensively investigated.

Clinical guidelines implemented in 2002 by the Scottish Intercollegiate Guidelines Network (SIGN) about screening, diagnosis and treatment for postnatal depression outline parameters for the levels of evidence provided by existing research literature (Scottish Intercollegiate Guidelines Network, 2002). High-level evidence (“level 1”), supporting a strong relationship between risk factors and postnatal depression, is provided by well-conducted systematic reviews, randomised controlled trials with a limited risk of bias, and rigorous meta-analyses. Somewhat weaker, but still significant supporting evidence for a relationship between risk factors and the outcome of postnatal depression is provided by well-conducted cohort studies with little inherent risk of bias, demonstrating moderate probability that the relationship is causal (“level 2”). SIGN groups risk factors into these levels of evidence (Scottish Intercollegiate Guidelines Network, 2002, p. 3), and existing evidence about risk factors for postnatal mood disturbance can be summarised on the basis of these classifications.

### **2.3.1 Established risk factors for worse perinatal mental health**

Prospective cohort studies and well-conducted systematic reviews have identified a number of moderate to strong psychosocial risk factors for worse maternal mood outcomes in pregnancy and following birth (Scottish Intercollegiate Guidelines Network, 2002). Evidence provided for these risk factors, is discussed below, and Australian evidence is described where available. Included literature draws from population samples of pregnant or postpartum women, recruited predominantly in obstetric and maternity care settings. These samples are considered to be ‘population samples’ of pregnant or childbearing women, as in Australia, fewer than 1% of births occur outside of a hospital or recognised birth centre (Laws & Hilder, 2008). Studies included in the discussion are those that use standardised, published assessments of psychological symptoms and maternal mood in pregnancy and the postpartum period.

### 2.3.1.1 Personal history of mood disturbance

Several studies have investigated whether a personal history of experiencing depressive symptoms, or receiving treatment for depression prior to conception renders women more vulnerable to experiencing mood disturbance in pregnancy or following birth. Studies investigating this relationship in community samples are summarised in Table 2.4.

**Table 2.4 Studies examining personal history of mood disturbance and perinatal mental health**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Kumar & Robson, 1984)  United Kingdom	119 nulliparous women partnered women recruited in ante-natal hospital outpatient clinics at 12-14 weeks gestation	Prospective study at 12, 24 and 36 weeks gestation and throughout first postpartum year to identify predictors of postnatal depression	Clinical interview GHQ <sup>1</sup> EPQ <sup>2</sup>	Significant associations with antenatal depression include: <ul style="list-style-type: none"> <li>• marital difficulties</li> <li>• psychiatric history: received treatment, in- or out-patient for emotional / psychiatric problems, counselling or medication</li> <li>• neurotic personality,</li> <li>• previous termination of pregnancy</li> </ul>
(O'Hara & Swain, 1996)  International	12,810 women, aggregated sample from 59 studies of prevalence and pregnancy risk factors for postnatal depression	Meta-analysis of existing studies reporting association between antenatal independent variables of interest and postnatal depression assessed on a standardised measure	Various	Causal factors for postnatal depression include: <ul style="list-style-type: none"> <li>• Low socio-economic status</li> <li>• stressful life events preceding birth</li> <li>• Pre-partum dissatisfaction with spousal relationship, including lack of emotional support</li> <li>• antenatal lack of social support</li> <li>• antenatal depressed mood</li> </ul>
(Bernazzani, Saucier, David, & Borgeat, 1997)  Canada	213 women recruited from 3 urban hospital sites, all partnered expecting a first or second baby.	Longitudinal analysis from pregnancy to 6 months after birth, examining predictors of postnatal depression	EPDS <sup>3</sup> LES <sup>4</sup> SSQ <sup>5</sup> DAS <sup>6</sup>	Predictors of probable depression include: <ul style="list-style-type: none"> <li>• antenatal depression (<math>\beta=0.24</math>, <math>p&lt;0.001</math>),</li> <li>• lower occupational status (<math>\beta=0.16</math>, <math>p&lt;0.01</math>),</li> <li>• stressful life events preceding pregnancy (<math>\beta = -0.16</math>, <math>p&lt;0.05</math>)</li> <li>• previous treatment for emotional disturbance (<math>\beta=-</math></li> </ul>

				0.17, p<0.01)
(Berthiaume et al., 1998) Canada	350 partnered women, referred by physician or voluntary via media advertising prior to 22 weeks gestation, expecting first or second baby	Cross-sectional investigation of relationship between depressive symptoms and psychosocial variables. Data collected at mean gestation 16 weeks (range 12-22 wks)	BDI <sup>7</sup> DAS <sup>6</sup> SSQ <sup>5</sup> LES <sup>4</sup>	Factors related to prenatal depressive symptoms: • prior depressive episode: defined as followed by a professional for emotional difficulties ( $\beta=-0.16$ , $p=0.0004$ ), •current unemployment ( $\beta=0.11$ , $p=0.01$ ), •poor social support ( $\beta=-0.09$ , $p=0.05$ ), •recent stressful life events ( $\beta=-0.18$ , $p=0.0001$ )
(Boyce & Hickey, 2005) Australia	Consecutive sample of 425 women giving birth at a major maternity hospital	Prospective study of risk factors for major depression at two days, 6,12,18 and 24 weeks following birth	EPDS <sup>3</sup>	Multi-variate analysis identified following risk factors: • Personal or family psychiatric history of psychopathology • Unsatisfactory social support (OR=2.23, $p<0.001$ ); • “worsening” marital relationship (OR=2.97, $p<0.001$ ); • Stressful life events since conception (OR=2.75, $p<0.01$ )

1. General Health Questionnaire (D. Goldberg, 1972)
2. Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975)
3. Edinburgh Postnatal Depression Scale
4. Life Experiences Questionnaire (Sarason et al., 1978)
5. Social Support Questionnaire (Sarason, Sarason, Shearn, & Pierce, 1987)
6. Dyadic Adjustment Scale (Spanier, 1976)
7. Beck Depression Inventory (A. Beck & Beck, 1972)

Experiencing prior depression has been consistently associated with poor well-being during pregnancy, including increased reports of heightened depressive and anxious symptomatology (Bernazzani et al., 1997; Berthiaume et al., 1998; Kumar & Robson, 1984). In these studies, history was assessed by asking participants whether they had received treatment from a health professional for emotional or psychiatric problems. Similarly, past history of depressive episode or psychiatric disorder, occurring prior to conception, are now established as strong predictors of postnatal affective disturbance.

Twelve studies included in O'Hara and Swain's (1996) meta-analysis had examined the relationship between past history of psychopathology and a diagnosis of postnatal depression. The combined analysis of these results found a strong positive causal

relationship between past history and present mood disorder, which was not altered by the various methods of postnatal assessment used across the 12 studies included in their analysis. The authors concluded that a woman vulnerable to postnatal depression would have, among other risk factors, a strong likelihood of a history of depressive disorder.

This result has been consistently supported in other studies of risk factors for postnatal depression (C. Beck, 2001; Bernazzani et al., 1997; Scottish Intercollegiate Guidelines Network, 2002). In a recent, prospective Australian study, a heterogeneous sample of 425 women were interviewed about their personal psychiatric history two days after birth (Boyce & Hickey, 2005). Women subsequently completed the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) by postal questionnaires at 6, 12, 18 and 24 weeks after the birth, and possible cases of postnatal depression identified by this screening instrument were confirmed by a structured clinical interview. Six percent of their sample reported a pre-conception history of psychiatric illness, and eight of these women were diagnosed as depressed postnatally. This study reported a fivefold increased risk of developing depression in women who reported a history of psychopathology compared to women who had no history of depression.

### **2.3.1.2 Psychological disturbance during pregnancy**

Several studies have investigated the relationship between poor antenatal mood and depression and anxiety following the birth. Studies drawn from community samples, using standardised assessments of maternal mood investigating this relationship are summarised in Table 2.5.

**Table 2.5 Studies investigating the relationship between ante- and postnatal mood**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Green & Murray, 1994)  England	1272 pregnant women recruited from 9 hospital sites	Prospective examination of the relationship between pre- and postnatal dysphoria, 3 pregnancy assessments, and one at 6 weeks after birth	EPDS <sup>1</sup> STAI <sup>2</sup>	<ul style="list-style-type: none"> <li>• Strong correlation pre- and postnatal depression scores (0.49, p&lt;0.0001)</li> <li>• postnatal probable depression most common in women who had no partner support, reported more infant difficulty,</li> </ul>
(O'Hara & Swain, 1996)  International	12,810 women, aggregated sample from 59 studies of prevalence and pregnancy risk factors for postnatal depression	Meta-analysis of existing studies reporting association between antenatal independent variables of interest and postnatal depression assessed on a standardised measure	Various	Causal factors for postnatal depression include: <ul style="list-style-type: none"> <li>• Low socio-economic status</li> <li>• stressful life events preceding birth</li> <li>• Pre-partum dissatisfaction with spousal relationship, including lack of emotional support</li> <li>• antenatal lack of social support</li> <li>• antenatal depressed mood</li> </ul>
(Bernazzani et al., 1997)  Canada	213 women recruited from 3 urban hospital sites, all partnered expecting a first or second baby.	Longitudinal analysis from pregnancy to 6 months after birth, examining predictors of postnatal depression	EPDS <sup>1</sup> DAS <sup>3</sup> SSQ <sup>4</sup> LES <sup>5</sup>	Predictors of probable depression include: <ul style="list-style-type: none"> <li>• antenatal depression (<math>\beta=0.24</math>, p&lt;0.001),</li> <li>• lower occupational status (<math>\beta=0.16</math>, p&lt;0.01),</li> <li>• stressful life events preceding pregnancy (<math>\beta = -0.16</math>, p&lt;0.05)</li> <li>• psychiatric history (<math>\beta=-0.17</math>, p&lt;0.01)</li> </ul>
(Chaudron et al., 2001)  United States	465 women recruited in late pregnancy. Advantaged sample of partnered women	Prospective investigation of new risk factors for new cases of depression arising between 1-4 months postpartum	CES-D <sup>6</sup>	<ul style="list-style-type: none"> <li>• After excluding women depressed at one month, new cases risk factor is antenatal depression (RR=6.5, p&lt;0.01)</li> <li>• No relationship parity, breastfeeding, education.</li> </ul>
(Beck, 2001)  International	Participants in 84 studies, 64% published, remainder unpublished conducted between 1990-1999	Meta-analysis of magnitude of relationship postnatal depression and psychosocial risk factors	Various, not all standardised mood assessments	13 predictors for postnatal depression found, including: <ul style="list-style-type: none"> <li>• prenatal depression,</li> <li>• childcare stress,</li> <li>• prenatal anxiety, life stress</li> <li>• inadequate social support,</li> <li>• poor marital relationship,</li> </ul>

				<ul style="list-style-type: none"> <li>• prior history of depression,</li> <li>• difficult infant temperament and</li> <li>• low socio-economic status.</li> </ul>
(Heron et al., 2004) England	All pregnant women booked for delivery in one geographical area (Avon, England) in an 18 month period, included in analysis if provided complete data for all intervals (n=8323)	Longitudinal study of patterns of depression and anxiety across pregnancy (18 and 32 weeks gestation) and 8 weeks, 8 months postpartum	EPDS <sup>1</sup> CCEI <sup>7</sup>	<ul style="list-style-type: none"> <li>• Depression at 32 weeks of pregnancy predicted postnatal depression at 8 weeks (OR=2.54, p&lt;0.001), and 8 months (OR= 2.14, p&lt;0.001).</li> <li>• Antenatal anxiety predicted postnatal depression at 8 weeks (OR=2.10, p&lt;0.001) and 8 months (OR=2.17, p&lt;0.001) after birth</li> </ul>
(Perren, Wyl, Burgin, Simoni, & Klitzing, 2005) Switzerland	74 couples expecting a first baby consecutively recruited via antenatal hospital outpatient clinic and one private obstetric practice	Prospective study of mood change and psychosocial stress from pregnancy to 1,3,12 and 18 months after birth	EPDS <sup>1</sup> SCL-90-R <sup>8</sup>	<ul style="list-style-type: none"> <li>• Antenatal depressive symptoms associated with worse postnatal mood (r=0.36, p&lt;0.01).</li> </ul>
(Milgrom et al., 2008)	12,361 women recruited consecutively during pregnancy, national cohort	Prospective investigation of antenatal risk factors for depressive symptoms at 6 weeks postpartum	EPDS <sup>1</sup>	<p>Risk factors for elevated depression at 6 weeks include:</p> <ul style="list-style-type: none"> <li>• Previous or antenatal depression</li> <li>• Previous or antenatal anxiety</li> <li>• Low levels of partner support</li> </ul>

1. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
2. State-Trait Anxiety Inventory (Spielberger et al., 1970)
3. Dyadic Adjustment Scale (Spanier, 1976)
4. Social Support Questionnaire (Sarason et al., 1987)
5. Life Experiences Questionnaire (Sarason et al., 1978)
6. Centre for Epidemiological Studies - Depression (Radloff, 1977)
7. Crown Crisp Experiential Index (Crisp, Jones, & Slater, 1978)
8. Symptom Checklist – Revised (Derogatis, 1977)

Two of these studies are methodologically weak, Perren's (2005) hampered by small numbers and Chaudron's (2001) by biased sampling from a socio-economically advantaged private obstetric setting. However, methodologically rigorous, prospective investigations sampling consecutively from population samples of pregnant women have consistently reported that women who are depressed during pregnancy are likely to experience worse mood following the birth (Bernazzani et al., 1997; Green & Murray, 1994; Heron et al., 2004). One Australian prospective investigation of a



national cohort of over 12,000 childbearing women collected mood data using the Edinburgh Postnatal Depression Scale (Cox et al., 1987) antenatally during hospital visits, and again at 6 weeks after birth (Milgrom et al., 2008). They found that antenatal probable depression, previous psychiatric history, and antenatal emotional problems reported on a non-standardised measure strongly predicted postnatal depression. However, the attrition in this study was over 60% of participants, and it is likely that those most distressed did not participate in follow-up. It is possible that the relationship reported between antenatal symptoms and postnatal depression in Milgrom et al.'s (2008) study would be an under-estimate of the strength of the relationship.

Three meta-analyses, performing a combined analysis of results from numerous studies of the relationship between antenatal and postnatal mood have confirmed that antenatal depression as a risk factor for postnatal depression (Beck, 2001; O'Hara & Swain, 1996; Robertson, Grace, Wallington, & Stewart, 2004).

Fewer studies have investigated the course of anxiety during pregnancy and its relationship to postnatal well-being. Heron et al. (2004) investigated the longitudinal patterns of anxiety and depression in a representative cohort 8323 women, assessed at 18 and 32 weeks of pregnancy, and 8 weeks and 8 months after birth. Although over 13,000 women were initially enrolled in the study, only 8323 completed all longitudinal data. The authors compared women who provided complete data with those who recorded incomplete information, and found that women who reported significantly more anxiety or depression symptoms at any interval were less likely to return questionnaires. Their results are therefore likely to underestimate the relationship between antenatal and postnatal mood disturbance. However, this study provides evidence from one of the most comprehensive cohort studies of pregnancy and postpartum women available to date in an industrialised setting, sampling consecutively from one large district in the United Kingdom. Heron et al. reported that women who met criteria for probable depression in pregnancy, using the EPDS (Cox et al., 1987) threshold of scores of thirteen and above, were over twice as likely to be depressed at 8 weeks and 8 months after birth as women not identified as

probably depressed antenatally. In addition, they found that women who reported heightened symptoms of anxiety on the Crown Crisp Experiential Index (Crisp et al., 1978) during pregnancy were also twice as likely to develop symptoms of postnatal depression at 8 weeks and 8 months after birth. This relationship between antenatal anxiety and postpartum depression was confirmed in a meta-analysis, combining results from six studies and a total of 1100 participants (Robertson et al., 2004).

### **2.3.1.3 Amount and quality of social support**

Several studies have investigated the effect of the amount, type and adequacy of support women receive from their immediate family, social network and peers on women's psychological well-being. Robertson et al. (2004) describe social support as a multi-dimensional concept, elicited from various sources – friends, associates, relatives and primary health-care professionals – that takes several distinct forms including advice, guidance, material aid and assistance with tasks, caring and emotional nurturance. Studies investigating the relationship between social support and maternal well-being in community samples during pregnancy are summarised in Table 2.6.

**Table 2.6 Studies investigating social support and maternal well-being in pregnancy**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Bernazzani et al., 1997)  Canada	213 women recruited from 3 urban hospital sites, all partnered expecting a first or second baby.	Part of a larger study. Cross-sectional analysis examining correlates of antenatal depressive symptoms during second trimester	EPDS <sup>1</sup> DAS <sup>2</sup> SSQ <sup>3</sup> LEQ <sup>4</sup>	Variables related to prenatal depressive symptoms included: • dissatisfaction with social support ( $\beta=-0.23$ , $p<0.001$ ) • recent stressful life events ( $\beta=-0.32$ , $p<0.001$ ) • personal psychiatric history ( $\beta=-0.23$ , $p<0.001$ )
(Berthiaume et al., 1998)  Canada	350 partnered women, referred by physician or voluntarily via media advertising prior to 22 weeks gestation, expecting first or second baby	Cross-sectional investigation of relationship between depressive symptoms and psychosocial variables. Data collected at mean gestation 16 weeks (range 12-22 wks)	BDI <sup>5</sup> DAS <sup>2</sup> SSQ <sup>3</sup> LEQ <sup>4</sup>	Predictors of depressive symptomatology include: • prior depressive episode ( $\beta=-0.16$ , $p=0.0004$ ) • current unemployment ( $\beta=0.11$ , $p=0.01$ ) • poor social support ( $\beta=-0.09$ , $p=0.05$ ) • recent stressful life events ( $\beta=-0.18$ , $p=0.0001$ )
(Pajulo, Savonlahti, Sourander, Helenius, & Piha, 2001)  Finland	391 recruited from maternity care centres between 18-35 weeks gestation	Cross-sectional study of prevalence and factors associated with poor mood	EPDS <sup>1</sup> SOS <sup>6</sup> Unpublished social support scale	Difficulties in the following relationships contributed to probable depression: • partner (OR=4.2, 0.02) • friends (OR=4.4, $p=0.001$ ) • trusted people (OR=3.2, $p=0.02$ )

1. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
2. Dyadic Adjustment Scale (Spanier, 1976)
3. Social Support Questionnaire (Sarason et al., 1987)
4. Life Experiences Questionnaire (Sarason et al., 1978)
5. Beck Depression Inventory (A. Beck & Beck, 1972)
6. Significant Others Scale (Power, Champion, & Aris, 1988)

These three cross-sectional investigations in community samples have assessed women's mood in the second trimester of pregnancy using standardised assessments of maternal well-being. Two of these studies used a standardised assessment of social support, the Social Support Questionnaire (Sarason et al., 1987), a 6-item brief measure of satisfaction with emotional support from trusted others. These investigators found that women who expressed dissatisfaction with the quality of their current emotional support were much more likely to report depressive symptoms antenatally than women satisfied with their support (Bernazzani et al., 1997;

Berthiaume et al., 1998). These results were replicated in the third study, although that study used an unpublished, non-validated assessment of social support (Pajulo et al., 2001). However, as these studies are of cross-sectional design, the direction of the observed association between maternal depressive symptoms and poorer quality social support in pregnancy has not been well elucidated. It is possible that women experiencing poorer psychological well-being are more likely to report feelings of isolation due to the social withdrawal commonly experienced with depression and to rate their current circumstances poorly.

Studies investigating the relationship between social support and maternal mental health in the postpartum are summarised in Table 2.7.

**Table 2.7 Studies investigation the relationship between social support and maternal postnatal well-being**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main findings</b>
(Cutrona, 1984)  USA	71 nulliparous women recruited in third trimester via obstetric clinics, antenatal classes and print media advertisements, homogenous sample	Prospective study of impact of social and partner support of maternal stress and depressive symptoms. Data collected in pregnancy, and 2 and 8 weeks and 12 months postpartum	BDI <sup>1</sup> Unpublished assessment of social support	<ul style="list-style-type: none"> <li>• No relationship pregnancy social support and 2-week postpartum mood</li> <li>• 8 weeks postpartum, overall high quality social support in pregnancy predicted fewer depressive symptoms</li> <li>• Absence of reliable alliance, and social integration predicted more depressive symptoms</li> </ul>
(Thorpe, Dragonas, & Golding, 1992)  Britain and Greece	165 Greek and 101 British mothers recruited via major maternity hospital	Prospective study emotional well-being pre- and postnatal and relationship to psychosocial factors at 4-6 weeks postpartum	CCEI <sup>2</sup> EPDS <sup>3</sup> Unpublished social support scale	<ul style="list-style-type: none"> <li>• In both settings, better maternal postnatal well-being predicted by better quality social support.</li> </ul>
(Small, Astbury, Brown, & Lumley, 1994a)  Australia	90 women, 45 with probable depression at 8-9 months, 45 without, randomly selected from population survey participants	Prospective comparison of women with and without elevated depression scores at 8-9 months, to identify social determinants of	EPDS <sup>3</sup> LES <sup>4</sup> SSQ <sup>5</sup> EMQ <sup>6</sup>	<p>Women who were probably depressed at 8-9 months were predicted in 85% of cases by:</p> <ul style="list-style-type: none"> <li>• more likely to be depressed at 2 years</li> <li>• reported less partner emotional support</li> </ul>

		mood 2 years after birth		<ul style="list-style-type: none"> <li>• more negative life events since birth</li> <li>• less practical help from partner</li> <li>• poor physical health</li> <li>• more negative experience of mothering</li> </ul>
(Boyce & Hickey, 2005)  Australia	Consecutive sample of 425 women giving birth at a major maternity hospital	Prospective study of risk factors for major depression at two days, 6,12,18 and 24 weeks following birth	EPDS <sup>3</sup> Study specific assessment of social support	Multivariate analysis identified following risk factors: <ul style="list-style-type: none"> <li>• Prior depression;</li> <li>• Unsatisfactory social support (OR=2.23, p&lt;0.001);</li> <li>• “worsening” marital relationship (OR=2.97, p&lt;0.001);</li> <li>• Stressful life events since conception (OR=2.75, p&lt;0.01).</li> </ul>

1. Beck Depression Inventory (A. Beck & Beck, 1972)
2. Crown Crisp Experiential Index (Crisp et al., 1978)
3. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
4. Life Experiences Questionnaire (Sarason et al., 1978)
5. Social Support Questionnaire (Sarason et al., 1987)
6. Experience of Motherhood Questionnaire (Astbury, 1994)

Similar associations between worse maternal mood and poorer quality social support have been observed in the postpartum period as in pregnancy. An Australian study of 90 women, randomly selected from a population based sample, completed the EPDS at 8-9 months following birth, and were followed up when their children were two years old (Small et al., 1994b). Forty-five of the 90 women had probable depression on the EPDS at 8-9 months postpartum, and a further 15 women reported at follow-up that they had felt depressed at sometime in the period since the birth of their baby. Of these 60 women, 37 (61%) reported that they had “felt isolated” and “unsupported”, and that this had contributed to their depressed mood. The same sample completed the Social Support Questionnaire (SSQ) (Sarason et al., 1987), a standardised assessment of the amount and adequacy of available emotional support at two years (Small et al., 1994a). The authors found that women who were or had been depressed reported less overall emotional support, and less satisfaction with the support that was provided. It is possible that social support contributed to the worse mood observed in the group reporting probable depression, but it is equally possible that depressed mood

influences women's perceptions of their close relationships, and the adequacy and nurturance provided.

The direction of the relationship between mood and social support had been investigated somewhat more rigorously in the postnatal period than in pregnancy, in prospective investigations. Cutrona (1984) assessed 71 nulliparous women in the third trimester of pregnancy for the presence of several aspects of emotional support including integration into a social group, nurturance, emotional closeness and the presence of a reliable alliance. In pregnancy and at 2 weeks, 8 weeks and one year post-partum, participants were assessed for depressive symptoms. Two of these components of antenatal social support recorded were associated with maternal depression at 8 weeks when earlier mood assessments were controlled for - unreliable assistance from peers and inconsistent integration into a peer group. Cutrona suggests that reliable, nurturing social support provides affirmation of worth and enhanced self-esteem and efficacy that in moderates the development of depressive symptoms.

One prospective study, of 101 British and 165 Greek women, found that social support, assessed in pregnancy and postnatally by a composite measure of emotional sustenance, understanding and instrumental assessment predicted lower EPDS scores at 4-6 weeks postpartum (Thorpe et al., 1992), suggesting a protective effect of emotional and practical assistance.

Boyce and Hickey (2005) used items adapted from a structured interview instrument of social support, the Mannheim Interview of Social Support (Veiel, 1990) to investigate prospectively the effect of social support on postnatal mood in a sample of 425 Australian women. Social support in this study was defined as "satisfactory support", "everyday instrumental support", "satisfaction with instrumental support in a crisis" and "satisfaction with psychological support in a crisis". They found that women who reported in the early postpartum assessments (6,12 and 18 weeks) that they were dissatisfied with one or more of these types of support, or received no social support, were at significantly heightened risk of postnatal depression by 6 months postpartum. These findings suggest that inadequate support in the postpartum is as much of a risk to women's well-being as an absence of support.

One meta-analysis of psychosocial predictors of postnatal depression combined the results of 27 studies that had investigated social support as a potential determinant of postnatal mood. Beck (2001) (Table 2.5) found that an absence of social support exerted a moderate effect on the likelihood of developing postnatal depression. However, reported inclusion criteria for the meta-analysis offer no definition of how social support was assessed or defined across the 27 studies used in the final analysis. From this meta-analysis, it is difficult to draw conclusions about the nature and amount of social support that is potentially contributing to maternal psychological outcomes. Equally, social support assessed in pregnancy has been demonstrated to have a protective effect against postnatal mood disturbance, defined either as “overall” social support (O’Hara & Swain, 1996), or as emotional and instrumental support accompanied by social integration (Robertson et al., 2004).

Taken together, these findings suggest that social support, variously defined, exerts a significant influence on postnatal mood and well-being. In the present literature, however, instrumental assistance with infant care and unpaid labour is rarely differentiated from emotional nurturance from others. Although inadequate or poor quality social support is now accepted as a risk factor for worse maternal well-being (Scottish Intercollegiate Guidelines Network, 2002), “social support” is often poorly conceptualised and inadequately defined. Milgrom et al. (2008) suggest that as a modifiable risk factor, interventions to improve maternal well-being could include social support dimensions. However, on current evidence, it is difficult to ascertain which improvements of emotional and instrumental support would contribute to better maternal outcomes.

#### **2.3.1.4 Quality of intimate partner relationship**

Women’s capacity to adapt to motherhood and to attain the necessary skills and concept of self as a mother occurs within the context of existing personal circumstances, familial, partner and social relationships. Existing relationships have the capacity to support and foster women’s development of a mothering identity, but they also require re-negotiation, particularly within the intimate partner relationship (Mercer, 1985; Ruble, Fleming, Hackel, & Stangor, 1988). The nature and quality of

the intimate relationship has been variously conceptualised and assessed as emotional support, practical support with housework and infant care, warmth and affection within the relationship, relationship satisfaction or the presence or absence of domination and control. Consistently, across these conceptualisations, the quality of the intimate partner relationship has emerged as a strong determinant of antenatal and postnatal maternal well-being (Scottish Intercollegiate Guidelines Network, 2002). Studies investigating this relationship are summarised in Table 2.8.

**Table 2.8 Studies investigating the relationship between quality of intimate relationship and maternal well-being**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measures</b>	<b>Main findings</b>
(Kumar & Robson, 1984)  United Kingdom	119 nulliparous women partnered women recruited in ante-natal hospital outpatient clinics at 12-14 weeks gestation	Prospective study at 12, 24 and 36 weeks gestation and throughout first postpartum year to identify predictors of postnatal depression	Clinical interview GHQ <sup>1</sup> EPQ <sup>2</sup>	<ul style="list-style-type: none"> <li>• Association with antenatal depression include: marital difficulties defined as ongoing tension, leading to periods of hostility in one or both partners, and history of “Emotional instability” spouse</li> </ul>
(Boyce, Hickie, & Parker, 1991)	149 nulliparous partnered women recruited at one public maternity hospital (no further details given)	Investigate the influence of parental bonding, and intimate partner relationship to postnatal depression at 1,3 and 6 months after birth	EPDS <sup>3</sup> IBM <sup>4</sup> PBI <sup>5</sup>	<ul style="list-style-type: none"> <li>• 1 month after birth: low care (RR=3.6) and high control (RR=3.9) increased risk of probable depression</li> <li>• 3 months, low care only increased risk (RR=3.3)</li> <li>• No relationship IBM scores and 6 months mood</li> </ul>
(Small et al., 1994a)  Australia	90 women, 45 with probable depression at 8-9 months, 45 without, randomly selected from population survey participants	Prospective comparison of women with and without elevated depression scores at 8-9 months, to identify social determinants of mood 2 years after birth	EPDS <sup>3</sup> SSQ <sup>6</sup>	<p>Women who were probably depressed at 8-9 months were predicated in 85% of cases by:</p> <ul style="list-style-type: none"> <li>• more likely to be depressed at 2 years</li> <li>• reported less partner emotional support</li> <li>• less practical help from partner</li> </ul>
(Green, 1998; Green & Murray, 1994)  England	1272 women, recruited in antenatal clinics at 9 hospital sites	Longitudinal study of relationship between antenatal and postnatal mood. Assessment at 35 weeks gestation and 6 weeks postpartum	EPDS <sup>3</sup> STAI <sup>7</sup>	<ul style="list-style-type: none"> <li>• Probable depression more likely in women of less socio-economic advantage.</li> <li>• “husband understands feelings” more likely to be reported by women who did not report probable depression ante- or postnatally (58% vs 22%).</li> </ul>



(Matthey, Barnett, Ungerer, & Waters, 2000) Australia	Convenience sample of 157 couples expecting first child, recruited in second trimester pregnancy, 59% response rate	Prospectively investigate the relationship between postnatal depression personality and intimate relationships in pregnancy and 6,18 and 52 weeks postpartum	BDI <sup>8</sup> GHQ <sup>1</sup> EPDS <sup>3</sup>	<ul style="list-style-type: none"> <li>• Low care from partner associated with increased risk of depression at 52 weeks (RR=4.3)</li> <li>• high domination and control from partner associated with depression at 18 weeks postpartum</li> </ul>
(Kermode et al., 2000) Australia	320 women, recruited via hospital antenatal clinics, and private obstetric clinics	Prospective study of psychological aspects of childbirth experiences. Assessment at each trimester.	PoMS <sup>9</sup> IBM <sup>4</sup>	<ul style="list-style-type: none"> <li>• Higher socio-economic status (<math>\beta = -8.01, p=0.003</math>) and more caring intimate partner predicted better maternal well-being (<math>\beta=-0.6, p=0.0007</math>).</li> <li>• no relationship with controlling partner</li> </ul>
(Pajulo et al., 2001) Finland	391 recruited from maternity care centres between 18-35 weeks gestation	Cross-sectional study of prevalence and factors associated with poor mood	EPDS <sup>3</sup> SOS <sup>10</sup> Unpublished social support scale	Difficulties in the following relationships contributed to probable depression: <ul style="list-style-type: none"> <li>• partner (OR=4.2, 0.02)</li> <li>• friends (OR=4.4, p=0.001)</li> <li>• trusted people (OR=3.2, p=0.02)</li> </ul>
(Boyce & Hickey, 2005) Australia	Consecutive sample of 425 women giving birth at a major maternity hospital	Prospective study of risk factors for major depression at two days, 6,12,18 and 24 weeks following birth	EPDS <sup>3</sup>	Multi-variate analysis identified following risk factors: <ul style="list-style-type: none"> <li>• Prior depression;</li> <li>• Unsatisfactory social support (OR=2.23, p&lt;0.001);</li> <li>• “worsening” marital relationship defined as poorer quality than previous assessment (OR=2.97, p&lt;0.001);</li> <li>• Stressful life events since conception (OR=2.75, p&lt;0.01).</li> </ul>

1. General Health Questionnaire (D. Goldberg, 1972)
2. Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975)
3. Edinburgh postnatal depression scale (Cox et al., 1987)
4. Intimate Bonds Measure (Wilhelm & Parker, 1988)
5. Parental Bonding Instrument (G. Parker, Tupling, & Brown, 1979)
6. Social Support Questionnaire (Sarason et al., 1987)
7. State-Trait Anxiety Inventory (Spielberger et al., 1970)
8. Beck Depression Inventory (A. Beck & Beck, 1972)
9. Profile of Mood States (McNair et al., 1971)
10. The Significant Others Scale (Power et al., 1988)

Antentally, a poor quality intimate partner relationship characterised by conflict, intimidation, domination or low warmth and care is associated with worse maternal well-being during pregnancy (Green, 1998; Green & Murray, 1994; Kermode et al.,

2000; Kumar & Robson, 1984; Pajulo et al., 2001). A similar effect of a poor quality intimate relationship on postnatal psychological well-being has been demonstrated, whether the relationship was assessed during pregnancy (Boyce & Hickey, 2005; O'Hara & Swain, 1996; Robertson et al., 2004) or following birth (C. Beck, 1996).

Two early studies of postnatal mood in large cohorts of childbearing women, one prospective (Green & Murray, 1994) and one cross-sectional (Small et al., 1994a) reported worse mood in women who felt that they had inadequate practical and emotional support from their intimate partner following the birth. A recent prospective Australian study of a consecutive cohort of 425 women found that marital dissatisfaction during pregnancy, and a worsening marital relationship in three postpartum interview assessments contributed to probable postpartum depression in the first 6 months after birth (Boyce & Hickey, 2005). These studies used single-item, study-specific assessments of the quality of the partner relationship.

Several studies have used the Intimate Bonds Measure (IBM) (Wilhelm & Parker, 1988), a two-dimensional psychometric assessment of perceptions of the quality of the intimate relationship. One dimension assesses the perceived amount of care, warmth, affection and trust; the second dimension elaborates the perceived presence of control, intimidation, criticism and domination.

Kermode et al. (2000) assessed partner relationship in the first trimester of pregnancy and at two months postpartum in a diverse sample of 320 Australian women. Mood was assessed during each trimester of pregnancy, and at 2 and 8 months postpartum on a standardised assessment of a range of mood dimensions including depression, anxiety, fatigue, tension and irritability. These investigators reported that worse mood was consistently associated with perceiving low care, warmth and affection from their partner.

Two other Australian studies using the IBM have supported this finding. One study of 149 nulliparous women recruited from a public obstetric hospital collected the IBM in the third trimester of pregnancy, and participants were assessed for depressive symptomatology at 1, 3, and 6 months postpartum (Boyce et al., 1991). At one month

postpartum, women at greatest relative risk of depression were those reporting in pregnancy that their partner was uncaring, demonstrating low consideration and affection. This risk factor remained high at the three months post-partum mood assessment, compared to women who reported more caring and supportive partner relationships in pregnancy. Women who reported symptoms in pregnancy consistent with probable case-ness for depression on the standardised assessments were excluded from follow-up, as the focus was on new postpartum onset of symptoms. These results therefore suggest that a pre-existing uncaring, unsupportive intimate relationship hampers women's capacity to adjust to new motherhood, contributing to the development of postpartum depression.

A controlling, intimidating, criticising partner is also likely to erode women's capacity to develop a confident maternal identity. Matthey et al. (2000) assessed partner relationship using the IBM during pregnancy and at 6 weeks, and 4 and 12 months postpartum in a sample of 157 women recruited from public antenatal clinics. They found that women who perceived their partners as controlling increased women's risk of depression at 18 weeks. The risk was not increased for women reporting low care in the early postpartum, but at 12 months, an uncaring intimate relationship was associated with a four-fold increased risk for depression. Boyce et al. (1991) also found that high control and domination reported in pregnancy contributed to maternal depression at one month following birth, but not at three or six months. Kermodé et al (2000) found no relationship between IBM control scores and maternal well-being in pregnancy or following birth.

It is likely that having a warm, supportive and caring intimate partner protects women from experiencing isolation and loneliness in the early postpartum months, and is supportive of the development of confident parenting skills. Moreover, having a partner who provides instrumental support with domestic workload and infant care demonstrates a shared commitment to the unpaid workload. Conversely, an unsupportive, unhelpful or uncaring partner is accepted as contributing to worse postnatal mood. Repeated criticism, coercion, control and domination are also

associated with increased depression in women across the life course, including during the perinatal period.

### 2.3.1.5 Coincidental demanding life events

The psychological and emotional adjustment to pregnancy and mothering occurs in a context of existing relationships and circumstances and recent or coincidental demanding events. Studies examining the relationship between perinatal mood in community samples assessed using standardised instruments and coincidental, adverse life events are presented in Table 2.9.

**Table 2.9 Studies investigating the relationship between coincidental adverse life events and maternal well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Small et al., 1994a)  Australia	90 women, 45 with probable depression at 8-9 months, 45 without, randomly selected from population survey participants	Prospective comparison of women with and without elevated depression scores at 8-9 months, to identify social determinants of mood 2 years after birth	EPDS <sup>1</sup> LEQ <sup>2</sup> SSQ <sup>3</sup> EMQ <sup>4</sup>	Women who were probably depressed at 8-9 months were predicated in 85% of cases by: <ul style="list-style-type: none"> <li>• more likely to be depressed at 2 years</li> <li>• reported less partner emotional support</li> <li>• more negative life events since birth</li> <li>• less practical help from partner</li> <li>• poor physical health</li> <li>• more negative experience of mothering</li> </ul>
(Bernazzani et al., 1997)  Canada	213 women recruited from 3 urban hospital sites, all partnered expecting a first or second baby.	Part of a larger study. Cross-sectional analysis examining predictors of antenatal depressive symptoms during second trimester	EPDS <sup>1</sup> DAS <sup>5</sup> SSQ <sup>3</sup> LEQ <sup>2</sup>	Variables related to prenatal depressive symptoms included: <ul style="list-style-type: none"> <li>• dissatisfaction with social support (<math>\beta=-0.23</math>, <math>&lt;0.001</math>)</li> <li>• recent stressful life events (<math>\beta=-0.32</math>, <math>p&lt;0.001</math>)</li> <li>• personal psychiatric history (<math>\beta=-0.23</math>, <math>p&lt;0.001</math>)</li> </ul>
(Berthiaume et al., 1998)  Canada	350 partnered women, referred by physician or voluntary via media advertising prior to 22 weeks gestation, expecting first or	Cross-sectional investigation of relationship between depressive symptoms and psychosocial variables. Data collected at mean	BDI <sup>6</sup> DAS <sup>5</sup> SSQ <sup>3</sup> LEQ <sup>2</sup>	Predictors of depressive symptomatology include: <ul style="list-style-type: none"> <li>• prior depressive episode (<math>\beta=-0.16</math>, <math>p=0.0004</math>)</li> <li>• current unemployment (<math>\beta=0.11</math>, <math>p=0.01</math>)</li> <li>• poor social support (<math>\beta=-0.09</math>, <math>p=0.05</math>)</li> </ul>

	second baby	gestation 16 weeks (range 12-22 wks)		<ul style="list-style-type: none"> <li>• recent stressful life events (<math>\beta=-0.18</math>, <math>p=0.0001</math>)</li> </ul>
(Boyce & Hickey, 2005)  Australia	Consecutive sample of 425 women giving birth at a major maternity hospital	Prospective study of risk factors for major depression at two days, 6,12,18 and 24 weeks following birth	EPDS <sup>3</sup>	Multi-variate analysis identified following risk factors: <ul style="list-style-type: none"> <li>• Prior depression;</li> <li>• Unsatisfactory social support (OR=2.23, <math>p&lt;0.001</math>);</li> <li>• “worsening” marital relationship (OR=2.97, <math>p&lt;0.001</math>);</li> <li>• Stressful life events since conception (OR=2.75, <math>p&lt;0.01</math>).</li> </ul>
(Rubertsson et al., 2005b)  Sweden	Population sample of 2430 women consecutively recruited from antenatal health clinics	Cross-sectional study (part of prospective study) of prevalence and correlates of depressive symptoms during pregnancy at mean gestation 16 weeks	EPDS <sup>1</sup>	Correlates of high (>12.0) EPDS scores include: <ul style="list-style-type: none"> <li>• stressful life events in year prior to pregnancy (OR = 3.7, <math>p&lt;0.001</math>)</li> <li>• unemployment (OR = 2.6, <math>p=0.001</math>).</li> </ul>

1. Edinburgh postnatal depression scale (Cox et al., 1987)
2. Life Experiences Questionnaire (Sarason et al., 1978)
3. Social Support Questionnaire (Sarason et al., 1987)
4. Experience of Motherhood Questionnaire (Astbury, 1994)
5. Dyadic Adjustment Scale (Spanier, 1976)
6. Beck Depression Inventory (A. Beck & Beck, 1972)

Two cross-sectional studies of maternal well-being in the mid-trimester of pregnancy have reported an association between adverse life events and more maternal depressive symptoms (Bernazzani et al., 1997; Berthiaume et al., 1998), although Berthiaume et al.’s study used non-representative sampling methods. Both studies used the Life Experiences Questionnaire (LEQ) (Sarason et al., 1978), a standardised measure of the impact of 47 adverse life occurrences in domains such as love and marriage, health, residential, crime and legal and family and friends. Stressful life events occurring prior to or during pregnancy contributed independently to heightened reports of depressive symptoms in pregnancy, measured by Bethiaume et al. using the the Beck Depression Inventory (A. Beck & Beck, 1972), and by Bernazzani et al. using the Edinburgh Postnatal Depression Scale (Cox et al., 1987). This suggests that the events precede the advent of depressive symptoms, but the possibility that depressive symptoms preceded the adverse events cannot be excluded using a cross-sectional study design.

Stronger evidence for this relationship, in both pregnancy and the postpartum period, was reported by Rubertsson et al (2005a), in a longitudinal study investigating depressive symptoms across the perinatal period. They assessed a group of 2430 Swedish women, at a mean gestation of 16 weeks and at 2 and 12 months postpartum using the EPDS, and a 10-item assessment of stressful life events occurring in the 12 months prior to the pregnancy. Examples of the life events included in the questionnaires were divorce, employment or financial problems, serious illness or death in a close relative, events requiring legal advice, and own serious illness. Women who had two or more of such events in the year prior to conception were at significantly increased risk of an elevated EPDS score at either the pregnancy or postpartum assessments, or both, indicating probable depression.

Demanding life events occurring during pregnancy and the postpartum have also been demonstrated to contribute to worse postpartum maternal mental health. Boyce and Hickey (2005), in a prospective study of a consecutive sample of 425 women giving birth at a major Australian maternity hospital, assessed women's well-being at 2 days, 6, 12, 18 and 24 weeks postpartum using the EPDS (Cox et al., 1987). Details about stressful life events since conception were collected using specifically constructed items. Such events placed women at a two-fold increased risk of reporting heightened depressive symptoms in postpartum assessments compared to women not experiencing recent adverse life events.

Small et al (1994a), at two-year postpartum follow-up, compared 45 women who had reported probable depression at 8-9 months to 45 women who did not have elevated EPDS scores at 8-9 months. All 90 participants completed the LEQ (Sarason et al., 1978) at two years. The total number of life events since the birth, and the perceived negative impact of these events had a strong positive correlation with worse maternal mood at two years after birth.

Methodologically rigorous investigations have thus established that concurrent or recent stressful and demanding life events are risk factors for worse perinatal mood outcomes (Beck, 2001; O'Hara & Swain, 1996; Scottish Intercollegiate Guidelines Network, 2002). Pope (2000, p. 52) has suggested that as childbirth itself is a major

life transition, the accumulated or additional demands placed on women by other life events are likely to lead to psychological symptoms. Pre-existing life circumstances that are already precarious such as marital conflict, insecure housing, employment or financial circumstances may become increasingly untenable at the birth of a baby. Accordingly, the need to address significant life stressors in conjunction with the life changes accompanying new parenthood are salient factors contributing to perinatal mental health outcomes.

### **2.3.2 Factors with an emerging association with maternal well-being**

Several other risk factors for worse perinatal mood outcomes have been described in the SIGN guidelines as having a less well-established association with maternal mood outcomes (Scottish Intercollegiate Guidelines Network, 2002). These factors have either been less widely investigated than those now established as risk factors, or evidence about their relationship to maternal mood has been provided in studies that yield a moderate, rather than strong probability that the relationship is causal. These maternal and social factors are described below, and evidence found in population studies, using standardised assessments of maternal mood are summarised.

#### **2.3.2.1 Socio-economic status**

Socio-economic advantage carries a range of benefits including secure income and financial status, stable accommodation, improved access to health services and increased autonomy. Several studies have examined whether socio-economic advantage, variously defined between studies, is protective of maternal well-being, in particular against depressed mood, in the perinatal period. These are summarised in Table 2.10.

**Table 2.10 Studies investigating socio-economic status and maternal well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Gotlib, Whiffen, Mount, Milne, & Cordy, 1989)  Canada	360 women recruited from maternity hospital and private obstetric practices, mixed parity and diverse socio-economic status	Prospective study of presence and correlates of depression. Two pregnancy assessments at 24 and 36 weeks gestation	BDI <sup>1</sup> SADS <sup>2</sup>	Depressed women more likely to be: <ul style="list-style-type: none"> <li>• younger</li> <li>• less educated,</li> <li>• have more children in household</li> </ul>
(Warner et al., 1996)	2375 women, recruited on alternate days in two postnatal wards, 46% first childbirth	Identify obstetric and psychosocial risk factors for postnatal depression at 6-8 weeks postpartum	EPDS <sup>3</sup>	High EPDS scores (>12) associated at 6-8wks with: <ul style="list-style-type: none"> <li>• unemployment mother (OR=1.56) or partner (OR=1.44)</li> <li>• unplanned pregnancy (OR=1.44)</li> <li>• not breastfeeding (OR=1.52)</li> </ul>
(Green, 1998; Green & Murray, 1994)  England	1272 women, recruited in antenatal clinics at 9 hospital sites	Longitudinal study of relationship between antenatal and postnatal mood. Assessment at 35 weeks gestation and 6 weeks postpartum	EPDS <sup>3</sup> STAI <sup>4</sup>	<ul style="list-style-type: none"> <li>• Probable depression more likely in women of less socio-economic advantage.</li> <li>• Lack of partner support, higher concern about foetal abnormality associated with worse mood.</li> <li>• High correlation between anxiety and depressive symptoms (<math>r=0.7</math>, <math>&lt;0.0001</math>).</li> </ul>
(Berthiaume et al., 1998)  Canada	350 partnered women, referred by physician or voluntary via media advertising prior to 22 weeks gestation, expecting first or second baby	Cross-sectional investigation of relationship between depressive symptoms and psychosocial variables. Data collected at mean gestation 16 weeks (range 12-22 wks)	BDI <sup>1</sup> DAS <sup>5</sup> SSQ <sup>6</sup> LES <sup>7</sup>	Predictors of depressive symptomatology include: <ul style="list-style-type: none"> <li>• prior depressive episode (<math>\beta=-0.16</math>, <math>p=0.0004</math>)</li> <li>• current unemployment (<math>\beta=0.11</math>, <math>p=0.01</math>)</li> <li>• poor social support (<math>\beta=-0.09</math>, <math>p=0.05</math>)</li> <li>• recent stressful life events (<math>\beta=-0.18</math>, <math>p=0.0001</math>)</li> </ul>
(Kermode et al., 2000)  Australia	320 women, recruited via hospital antenatal clinics, and private obstetric clinics	Prospective study of psychological aspects of childbirth experiences. Assessment at each trimester.	PoMS <sup>8</sup> IBM <sup>9</sup>	<ul style="list-style-type: none"> <li>• Women without private health insurance had significantly worse mood in second (38.3 vs 30.0, <math>p=0.05</math>) and third trimester (44.4 vs 35.4, <math>p=0.02</math>) using the PoMS.</li> <li>• Higher socio-economic status (<math>\beta = -8.01</math>, <math>p=0.003</math>)</li> </ul>



				and more caring intimate partner predicted better maternal well-being ( $\beta = -0.6, p = 0.0007$ ).
(Rubertsson et al., 2005b)  Sweden	Population sample of 2430 women consecutively recruited from antenatal health clinics	Cross-sectional study (part of prospective study) of prevalence and correlates of depressive symptoms during pregnancy at mean gestation 16 weeks	EPDS <sup>3</sup>	Correlates of high (>12.0) EPDS scores include: • stressful life events in year prior to pregnancy (OR = 3.7, $p < 0.001$ ) • unemployment (OR = 2.6, $p = 0.001$ ).

1. Beck Depression Inventory (A. Beck & Beck, 1972)
2. Schedule for Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978)
3. Edinburgh postnatal depression scale (Cox et al., 1987)
4. State-Trait Anxiety Inventory (Spielberger et al., 1970)
5. Dyadic Adjustment Scale (Spanier, 1976)
6. Social Support Questionnaire (Sarason et al., 1987)
7. Life Experiences Questionnaire (Sarason et al., 1978)
8. Profile of Mood States (McNair et al., 1971)
9. Intimate Bonds Measure (Wilhelm & Parker, 1988)

Studies of maternal antenatal well-being, assessing mood either cross-sectionally (Berthiaume et al., 1998; Green & Murray, 1994; Rubertsson et al., 2005b) or repeatedly (Gotlib et al., 1989; Kermodé et al., 2000) have consistently reported an association between worse mood and less socioeconomic advantage. In these studies, socio-economic status was variously assessed by education level (Gotlib et al., 1989), unemployment (Berthiaume et al., 1998; Rubertsson et al., 2005b), an absence of private health insurance (Kermodé et al., 2000) or a combination of these measures (Green, 1998; Green & Murray, 1994).

Kermodé et al. (2000) utilised private health insurance as an indicator of relative socio-economic advantage in a diverse sample of 320 childbearing women. Assessing mood in each trimester of pregnancy, and at 2 and 8 months postpartum, they demonstrated more consistently disturbed mood in public patients across the perinatal period compared to women with private health insurance. Women without private health insurance reported more anger, confusion, depressive symptoms, tension and anxiety on a standardised assessment (Profile of Mood States) (McNair et al., 1971) than women who were privately insured. The authors suggest that the relative benefits brought by socio-economic advantage and economic security mean that the impending birth and subsequent care of a new baby is less stressful and seen as less of

a burden than in resource-constrained circumstances, and this results in less overall psychological disturbance.

Warner (1996) screened a systematic sample of 2375 women with the EPDS at 6-8 weeks postpartum. She found significantly increased odds of elevated depressive symptoms in women who were themselves unemployed with no job to return to following their current time in the unpaid workforce, or in women who if partnered, reported that their partner was currently unemployed. Warner suggests that worse mood in unemployed women, or women with unemployed partners, reflects the adversity inherent in financial insecurity, and that women wanting to resume employment but without a job are distressed at the substantial role change inherent in their shift from paid workforce to the unpaid workforce. A Canadian study of 213 women used occupational status, assessed as low, middle or high status, and income as measures of socio-economic advantage (Bernazzani et al., 1997). At 6 months, they found that low occupational status had a direct adverse effect on depressive symptoms.

Little is known about the course of depression as mediated by financial stressors and socio-economic status. While low socio-economic status is now considered a probable risk factor for postnatal depression (Beck, 2001; O'Hara & Swain, 1996), it is likely that unemployment, adverse work conditions, insecure housing and income and financial strain all have adverse psychological outcomes not limited to depression, necessitating further investigation.

### **2.3.2.2 Infant sleeping, crying and behaviour**

Evidence about the effect of infant behaviour, infant crying, sleeping and settling difficulties on maternal well-being has been slow to emerge. Infant crying, fussing, unsettled behaviour and sleep problems are the most common reasons that parents seek help from primary health care providers (Morris, St James-Roberts, Sleep, & Gillham, 2001). It is estimated from community studies that nearly one in five infants exhibit excessive crying in the first two months of life, and between 20% and 46% of parents report a sleep problem in the first twelve months after their baby's birth (Bayer, Hiscock, Hampton, & Wake, 2007; Hiscock & Wake, 2001; Morris et al.,

2001; Wake, 2006). In order to understand the impact of infant behaviour on maternal mood, efficacy, and fatigue, studies of community samples of postpartum women have examined infant temperament, infant crying and infant sleeping and settling difficulties. Cross-sectional investigations of this relationship, using standardised assessments of maternal mood are summarised in Table 2.11.

**Table 2.11 Cross-sectional investigations of infant factors and maternal well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main Findings
(Hopkins, Campbell, & Marcus, 1987)  USA	25 depressed and 24 non-depressed women recruited at 6 weeks a single postpartum from obstetric practice	Comparison of women who met standardised diagnostic criteria for depression with those without depression for impact of infant related stressors on depression at 6 weeks postpartum	BDI <sup>1</sup> SADS <sup>2</sup> ICQ <sup>3</sup>	<ul style="list-style-type: none"> <li>• Infants of depressed mothers had greater incidence of neonatal complications (32% vs 4%).</li> <li>• on ICQ scale, infants of depressed mothers significantly higher scores on 3 out of 4 subscales: more 'difficult', more 'unadaptable' and more 'unpredictable'</li> <li>• In regression, ICQ explained 5% in variance in severity of depression</li> </ul>
(Whiffen & Gotlib, 1989)  Canada	25 depressed and 25 non-depressed mothers of 4 week old infants, convenience sample	Examine link between maternal depression and infant characteristics at 4 weeks	BDI <sup>1</sup> SADS <sup>2</sup> ICQ <sup>3</sup> BSID <sup>4</sup>	<ul style="list-style-type: none"> <li>• No differences in maternal ratings of infants according to maternal depressive symptoms</li> <li>• In observation by blinded assessor (the BSID structured assessment), infants of depressed mothers measurably quicker to display negative emotions</li> </ul>
(Hiscock & Wake, 2001)  Australia	738 women recruited from 3 community child health centres, 6-12 months postpartum	Cross-sectional survey of relationship between infant sleep problems and maternal well-being	EPDS <sup>8</sup>	<ul style="list-style-type: none"> <li>• 46% of mothers reported infant sleep was problematic</li> <li>• Maternal report of sleep problem independent predictor of probable depression (OR 95% CI = 2.1, 1.3-4.3)</li> <li>• Controlled for other risk factors for depression</li> </ul>
(Bayer et al., 2007)  Australia	692 women recruited at 4-6 months from maternal and child health centres	Cross-sectional survey investigating relationship between maternal well being and infant sleep problems	SF-12 <sup>9</sup>	<ul style="list-style-type: none"> <li>• 34% reported infant sleep problem</li> <li>• Poorer mental and physical health associated with infant sleep problem, prior history of depression and partner conflict about sleep management</li> </ul>

1. Beck Depression Inventory (A. Beck & Beck, 1972)
2. Schedule of Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978)
3. Infant Characteristics Questionnaire (Bates, Freeland, & Lounsbury, 1979)
4. Bayley Scales of Infant Development (Bayley, 1969)
5. General Health Questionnaire (D. Goldberg, 1972)
6. State Trait Anxiety Inventory (Spielberger et al., 1970)
7. Baby's Day Diary (Barr et al., 1988)
8. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
9. Short form health Questionnaire (JE Ware, Kosinski, & Keller, 1996)

These cross-sectional investigations have consistently reported a significant association between maternal depressive symptoms and more unsettled, difficult infant behaviour. Maternal depression has been associated with more neonatal complications and more difficult, unpredictable patterns of infant behaviour (Hopkins et al., 1987; Whiffen & Gotlib, 1989), and reporting an infant sleep problem including frequent night waking, frequent bed-sharing and having to feed the infant to sleep (Bayer et al., 2007; Hiscock et al., 2007).

From these cross-sectional investigations, many of which rely on maternal reports of infant temperament and behaviour, it is not possible to ascertain whether unsettled infant behaviour and sleeping problems cause maternal mood disturbance, or whether women who are more generally disaffected and miserable are more likely to find the tasks of infant care more difficult, thus rating their infant's behaviour as more problematic. Whiffen and Gotlib (1989) provided some suggestion of the direction of this effect, that infant behaviour contributed to maternal depression. The infants of participants in their study were assessed by an investigator who was blinded to the depression diagnosis in the mother. They reported that the infants of depressed mothers displayed negative emotions more rapidly in response to daily events such as feeding and changing, making these infants potentially more demanding to soothe and care for. It is possible therefore that infants who resist maternal attempts at soothing erode women's sense of competence and confidence in caring for their infant.

The relationship between worse maternal mood and infant behaviour has been somewhat better elucidated in prospective investigations. A summary of studies conducted in population samples, assessing mood using standardised assessments is presented in Table 2.12.

**Table 2.12 Prospective investigations of infant factors and maternal well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main Findings
(Campbell, Cohn, Flanagan, Popper, & Meyers, 1992)  USA	70 depressed women identified after birth and 59 non-depressed women matched for age, education and marital status, recruited from single maternity hospital	Longitudinal investigation of course and correlates of postpartum depression until 24 months after birth, assessments at 2,4,6,9,12,18 and 24 months	SADS <sup>1</sup> ICQ <sup>2</sup>	<ul style="list-style-type: none"> <li>• Cross-sectional 2 month data associations, so no direction can be ascertained</li> <li>• Depressed women felt overwhelmed with demands of infant care</li> <li>• Depressed women felt infants more difficult to care for at 2 months</li> </ul>
(Miller, Barr, & Eaton, 1993)  Canada	88 nulliparous women from recruited from a single obstetric practice in pregnancy	Investigation of association between infant crying and fussing at 6 weeks on maternal mood, controlling for pregnancy mood assessment	GHQ-30 <sup>5</sup> STAI <sup>6</sup> BDD <sup>7</sup>	<p>When antenatal mood disturbance controlled for, significant association between worse maternal mood at 6 weeks postpartum and:</p> <ul style="list-style-type: none"> <li>• infant cry/fuss duration (<math>r=0.45</math>, <math>p&lt;0.01</math>)</li> <li>• infant cry/fuss frequency (<math>r = 0.28</math>, <math>P&lt;0.01</math>)</li> </ul>
(Beebe, Casey, & Pinto-Martin, 1993)  USA	Consecutive sample of 75 women recruited at routine child health check-up at 6-12 weeks	Descriptive investigation of relationship between reported infant crying at 6-12 weeks and parenting stress at 4-6 months	PSI <sup>3</sup>	<ul style="list-style-type: none"> <li>• 23% of women reported &gt;3hrs per day infant crying</li> <li>• Excessive infant crying reported at 6-12weeks associated with higher parenting stress at 4-6 months postpartum</li> <li>• When stratified for young age and socio-economic disadvantage only lower positive 'reinforcement' of parenting behaviour subscale of PSI significantly associated with excessive infant crying</li> </ul>
(Merchant, Affonso, & Maybery, 1995)  USA	71 women, homogenous convenience sample of primiparous women	Predictive influence of marital and child care stress on depressive symptoms at 6,9 and 12 months	CSI <sup>4</sup> SCL-20-R <sup>5</sup> DAS <sup>6</sup>	<ul style="list-style-type: none"> <li>• cross-sectional analyses performed at each interval</li> <li>• at 9 months (but not 6 or 12 months) low partner support and perceived high childcare demands made an independent contribution to 9 month depression symptoms</li> </ul>
(Milgrom, Westley, & McCloud, 1995)  Australia	29 depressed (psychiatrist diagnosis) recruited from mother baby-units and 44 non-depressed women recruited from maternal-child	Comparison of crying patterns of infants of depressed and non-depressed mothers at 3 and 6 mos.	BDD <sup>7</sup> EPDS <sup>8</sup> PSI <sup>3</sup> ITQ <sup>9</sup>	<ul style="list-style-type: none"> <li>• At 3 months, infants of depressed mothers cried more than comparison infants</li> <li>• Not explained by temperamental differences</li> <li>• Conclude that infants might be responding to mothers unavailability by crying, but</li> </ul>

	health centres at 3 months after birth			cannot attribute direction of the effect
(Hiscock & Wake, 2002)  Australia	156 mothers with 6-12 infants with severe sleep problems recruited from maternal and child health centres	Randomised trial comparing infant sleep and maternal mood outcomes for behavioural infant sleep and settling intervention vs routine care group	EPDS <sup>8</sup>	<ul style="list-style-type: none"> <li>• Short-term improvement in maternal mood, at 2 but not 4 months after intervention</li> <li>• For women who were probably depressed at outset in intervention group, symptoms decreased at 4 months significantly, but not for all women in intervention.</li> </ul>
(Fisher, Feekery, & Rowe, 2004)  Australia	81 women admitted to private residential mothercraft unit, consecutively recruited on admission. Average infant age 5-6 months, 40% of sample primiparous women	Prospective investigation of the effects of psycho-educational intervention on maternal mood and infant behaviour at one month following discharge from unit	EPDS <sup>8</sup> PoMS <sup>10</sup> BDD <sup>7</sup>	<ul style="list-style-type: none"> <li>• At one month following discharge, maternal mood had improved (EPDS scores 12.3 on admission to 6.6 at one month, p&lt;0.0001). Less fatigue, confusion and anxiety also reported at follow-up</li> <li>• Infant behaviour improved at follow-up: less crying duration per 24 hours, longer daytime sleep and &lt;28% of infants waking more than twice overnight</li> </ul>
(Dennis & Ross, 2005)  Canada	505 women scoring <13 on the EPDS at 1 week postpartum, self selected from a range of maternity care settings – hospitals, obstetric and community midwifery practices	Relationships between infant sleep, maternal fatigue and development of depression at 4 and 8 weeks, in women who were not depressed at 1 week postpartum	EPDS <sup>8</sup> Study specific assessments of infant sleep patterns, duration and frequency	Score of >12 on EPDS at 8 weeks associated with: <ul style="list-style-type: none"> <li>• frequent infant crying 4 wks (OR=4.3) and 8 wks (OR=3.7)</li> <li>• infant night waking&gt;3 times overnight at 4 (OR=2.9) and 8 (OR=3.2) weeks</li> <li>• mother has &lt;6/24 hours sleep at 4 (OR=3.2) and 8 (OR = 6.8) weeks</li> </ul>
(Hiscock et al., 2007)  Australia	328 women reporting an infant sleep problem, recruited from community settings	Cluster randomised trial to improve infant sleep and maternal well-being at 7, 10 and 12 months	EPDS <sup>8</sup> SF-12 <sup>11</sup>	<ul style="list-style-type: none"> <li>• Intervention mothers had significantly fewer depressive symptoms at 10 and 12 months.</li> <li>• Better infant sleep in intervention mothers at 10 and 12 months</li> <li>• Intervention group decreased other primary health service use</li> </ul>

1. Schedule of Affective Disorders and Schizophrenia (Endicott & Spitzer, 1978)
2. Infant Characteristics Questionnaire (Bates et al., 1979)
3. Parenting Stress Index (Abidin, 1986)
4. Childcare Stress Inventory (Cutrona, 1984)
5. Symptom Checklist (20 items, revised) (Derogatis, 1977)
6. Dyadic Adjustment Scale (Spanier, 1976)
7. Baby's Day Diary (Barr et al., 1988)
8. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
9. Infant Temperament Questionnaire (Sanson, Prior, Garino, Oberklaid, & Sewell, 1987)
10. Profile of Mood States (McNair et al., 1971)
11. Short form health Questionnaire (JE Ware et al., 1996)

Although prospective designs were used, several of the above studies have not established the direction of the observed significant relationship between maternal depressive symptoms in the postpartum and more frequent infant crying (Milgrom et al., 1995) or maternal perception of childcare as demanding and difficult (Beebe et al., 1993; Merchant et al., 1995). These studies have relied on cross-sectional analyses (Campbell et al., 1992; Merchant et al., 1995) so it is not possible to ascertain whether unsettled infant behaviour contributed to poorer maternal mood, or conversely, whether women who find the adjustment to motherhood a more demanding experience commonly reported infant crying and sleep behaviours as particularly difficult and distressing.

Milgrom et al. (1995) compared infants of women who were recruited into the study after a psychiatrist diagnosis of depression to women recruited from community child health centres without a diagnosis of depression. They reported more frequent infant crying at three and six months postpartum in infants of mothers who were receiving treatment for depression. The authors conclude that infants of depressed women cry more in response to their mothers' unavailability. However, it is also possible that early postpartum unsettled infant behaviour and frequent crying may have contributed to the worse maternal mood in women diagnosed with depression.

Results of studies that have better conceptualised the direction of this relationship have suggested that infant crying, poor infant sleeping patterns and maternal fatigue contribute to worse postpartum mental health. Miller et al. (1993) adjusted for antenatal mood disturbance in investigating the relationship between infant crying and fussing frequency and duration, and maternal mood at 6 weeks postpartum. They found that even when depressive symptoms in pregnancy were accounted for, longer, more frequent periods of infant crying contributed to maternal depressive symptoms at six weeks after birth. Dennis et al. (2005) followed a sub-sample of women from a population-based survey who, at one week postpartum, scored below the threshold for probable depression on the Edinburgh Postnatal Depression Scale (Cox et al., 1987). They found that at four and eight weeks postpartum, participants who reported fatigue, frequent infant night waking to care for the infant, frequent infant crying and



less than six hours sleep in a twenty-four hour period were significantly more likely to report probable depression at 4 and 8 weeks postpartum. These results suggest that infant factors contribute to the development of maternal depression, although the analysis did not include other factors known to influence maternal mood outcomes.

A small number of studies of Australian postpartum women have investigated the impact of infant sleep problems on maternal well-being. Fisher et al. (2004) evaluated a consecutive sample of 81 women and their infants admitted to a private, residential mothercraft (non-psychiatric) unit at one month following discharge. On admission to the unit, over 40% of women scored in the clinical range of the Edinburgh Postnatal Depression Scale (Cox et al., 1987). This sample were also characterised by extreme fatigue, heightened anxiety, and low partner support with housework and infant care. Most of the infants (>90%) were described by their mothers as sleeping poorly or very poorly including frequent overnight waking, short daytime sleeps and crying episodes of longer than 10 minutes. The intervention offered to all women undertaking the residential programme included individualised strategies designed to provide women with the skills necessary to foster infant settling and improved sleep. In addition, a group educational program covering strategies for infant care, relevant aspects of infant development, and therapist-led discussions about adjustment to parenthood, and strategies to negotiate the work of motherhood are provided, with partners' encouraged to attend and participate.

At one month after discharge, participants in Fisher et al. (2004) study reported improved mood, with a significantly reduced proportion (13%) scoring in the clinically significant EPDS range, and participants reported less fatigue, less anxiety, more clarity of thought and more functional efficiency assessed using the Profile of Mood States (McNair et al., 1971). Participants also reported improved infant sleeping including longer daytime sleeps, less overnight waking and reduced crying and fussing episodes in each twenty-four hour diarised period. Fisher et al. conclude that comprehensive treatment of women's needs, combined with supporting women to attend to disrupted infant behaviour and fostering improved partner support, may be a highly effective method to treat moderately severe postpartum mood disorders.

Also in Australia, Hiscock et al., conducted a randomised trial of an infant sleep intervention designed to improve infant sleeping, and to assess the effect of this intervention on maternal mood (Hiscock & Wake, 2002). The intervention consisted of three private consultations with one of the study authors - a sleep management paediatrician - in which parents were trained and supported to carry out an infant sleep modification programme. The control group received written information about normal infant sleeping, with no further information about sleep management. Primary outcomes of the trial, assessed at two and four months after the intervention, were maternal reports of an infant sleep problem and maternal well-being assessed via the EPDS. At two, but not four months, women in the intervention group reported greater resolution of sleep problems and fewer depressive symptoms than women in the control group. These results were replicated in second trial, where the intervention was conducted by local maternal and child health nurses (Hiscock et al., 2007). These findings suggest that providing women with infant sleeping and settling strategies had a measurable positive effect on infant sleeping patterns and maternal mood in the early postpartum.

There is emerging evidence therefore that prolonged infant crying, disrupted sleeping and frequent waking is related to worse maternal mood outcomes. The direction of this relationship has yet to be firmly established. It is plausible that unsettled infant behaviour, and crying and fussing that resists maternal efforts to soothe, decreases women's confidence and their sense that their care provision to their infant is appropriate and sensitive. It is also notable that recent Australian studies have reported that improved maternal mood and well-being is associated with treating and improving infant behaviour (Fisher et al., 2004; Hiscock et al., 2007), suggesting that regardless of the direction of the cause, resolution of difficult infant behaviour is likely to have a positive effect on maternal well-being.

### **2.3.2.3 Postnatal physical health**

In the early months following birth, women recuperate from pregnancy and childbirth in the context of meeting the constant demands of infant care and their unpaid household workload. Whilst routine obstetric care normally ends in Australia with the

six-week postnatal visit to a general practitioner, obstetrician or maternity hospital outpatient clinic, evidence suggests that women's physical recovery can take many months (Gjerdingen, Froberg, & Kochevar, 1991; Tulman & Fawcett, 1991).

Large prospective studies have found that the postpartum is a time of high prevalence of physical symptoms for women, some persisting for at least twelve months. One study of 1350 women across eight hospital sites in France and Italy found that over half of the sample reported backache at five and twelve months postpartum. At 12 months, over 20% of women reported at least one of the following symptoms; haemorrhoids, constipation, sleep disorders, headaches, painful intercourse, varicose veins and extreme fatigue. Rates of co-occurring symptoms were not reported (Saurel-Cubizolles, Romito, Lelong, & Ancel, 2000). A study of a random sample of over 1200 women giving birth in a major maternity hospital in the United Kingdom found that 80% of primiparous mothers reported at least one health problem between 2 and 18 months postpartum (Glazener et al., 1995). The most common symptoms reported included fatigue (56%), backache (19%), haemorrhoids (19%), painful perineum (16%) and breast problems (14%), with women reporting more than one symptom on average. Women who had an assisted vaginal birth were significantly more likely to report more perineal pain, constipation and haemorrhoids between 2-18 months postpartum than women either having an unassisted vaginal birth or delivery by caesarean section. This study relies on retrospective recall of symptoms over a long time period (2-18 months), and it is difficult to ascertain when and for what duration physical symptoms occurred.

In Australia, a state-wide postal survey of a representative cohort of 1336 women was carried out in Victoria six months following birth, and reported that 94% of the sample reported one or more health problems (Brown & Lumley, 1998). The most common health problems reported were fatigue (69%), backache (43%), sexual problems (not defined, 26%), haemorrhoids (25%) and perineal pain (21%), with no differences according to parity. In this study too, women who experienced assisted vaginal births reported the most maternal morbidity including more urinary

incontinence, perineal pain, bowel problems, sexual problems and haemorrhoids than women who had an unassisted vaginal, or caesarean birth.

The Victorian survey described above found significant associations between women's self-reports of physical symptoms including fatigue, urinary incontinence, back pain, sexual problems, bowel problems and perineal pain, and probable depression assessed on a widely used screening tool (EPDS) (Brown & Lumley, 2000; Small et al., 1994a). Although the direction of this association cannot be ascertained in this cross-sectional investigation, the authors suggest that physical well-being has been overlooked in studies identifying potential factors contributing to maternal depression.

#### **2.3.2.4 Breastfeeding and maternal well-being**

The current recommendation for the optimal food for infants in Australia, as promoted by the World Health Organization (WHO) (World Health Organization, 2002), is for exclusive breastmilk for the first 6 months of life (National Health and Medical Research Council, 2003). Breastfeeding initiation is high in Australia, with nearly 90% of women breastfeeding their newborn infants in the hours and days immediately following the birth (Amir & Donath, 2008). However, there is a rapid decline in breastfeeding in the first 6 months following birth. Only 50% of all infants are receiving any breastmilk by the time they are 6 months of age (Amir & Donath, 2008; Scott, Binns, Oddy, & Graham, 2006), and only 19% of infants are receiving breastmilk exclusively at 25 weeks (less than 6 months), recommended by WHO, with no other foods or milks (Donath & Amir, 2000).

Several maternal characteristics have been found to consistently predict breastfeeding duration of less than 6 months. Low maternal educational attainment, maternal age of less than 25 years, maternal smoking during pregnancy, and socio-economic disadvantage have all been identified in prospective studies as risk factors for breastfeeding cessation before 6 months (Amir & Donath, 2008; Donath, Amir, & The ALSPAC Study Team, 2004; Forster, McLachlan, & Lumley, 2006; Scott & Binns, 1998; Scott et al., 2006). Participation in postnatal employment is also emerging as a

risk factor for shorter breastfeeding duration, and will be discussed in Chapter 4 (Section 4.3.8).

Several studies have observed a relationship between maternal depressive symptomatology on standardised, self-report assessments, and not, or no longer, breastfeeding in population samples, and these are summarised in Table 2.13.

**Table 2.13 Studies investigating the relationship between breastfeeding (bf) and maternal well-being**

<b>Authors Date Country</b>	<b>Sample</b>	<b>Aims and Study Design</b>	<b>Measure s</b>	<b>Main Findings</b>
(Astbury, Brown, Lumley, & Small, 1994)  Australia	Representative sample of all Victorian women giving birth in one week in 1989, n=790.	Cross-sectional survey of new mothers examining social determinants of postpartum depression	EPDS <sup>1</sup>	<ul style="list-style-type: none"> <li>• Not breastfeeding from birth significantly associated with probable depression at 8-9 months postpartum (OR = 1.86, 95% CI 1.01-3.43).</li> </ul>
(Amir, Dennerstein, Garland, Fisher, & Farish, 1996)  Australia	48 women with nipple pain >2 wks postpartum recruited from lactation clinics, and 65 lactating 'control' women recruited during 6-week postnatal visit	Comparative study of psychological well-being between women experiencing nipple pain, before and after treatment, and those breastfeeding normally	EPDS <sup>1</sup> PoMS <sup>2</sup>	<ul style="list-style-type: none"> <li>• Higher mood disturbance for women reporting nipple pain than those without (EPDS 12.4 vs 7.6, P&lt;0.0001)</li> <li>• After pain resolution, significantly less mood disturbance than before pain resolved (PoMS 37.6 vs 6.8, P&lt;0.001), and similar to control lactating group</li> </ul>
(Henderson, Evans, Straton, Priest, & Hagan, 2003)  Australia	1745 women recruited on postnatal wards of two large public maternity hospitals	Prospective investigation of relationship postnatal depression and bf duration. Data collected at birth, 2,6 and 12 months postpartum	EPDS <sup>1</sup>	<ul style="list-style-type: none"> <li>• Higher risk of bf cessation for women who reported probable depression at any of time points</li> <li>• Bf cessation preceded by depression onset for women who reported depressive symptoms in 93% of cases.</li> </ul>
(Hatton et al., 2005)  USA	377 recruited from large multi-centre cohort, only 48% response rate	Analysis of cross-sectional data at 6 weeks after birth, examining relationship between depression and bf. Also longitudinal sub-sample followed at 12 weeks	EPDS <sup>1</sup> LES <sup>3</sup>	<ul style="list-style-type: none"> <li>• Women who were bf had less depressive symptoms at 6 weeks, when age, education and previous depression were controlled for.</li> <li>• At 12 weeks, no relationship bf and depressive symptoms</li> <li>• Stronger relationship earlier in postpartum.</li> </ul>
(McLearn, Minkovitz, Strobino, Marks, &	Secondary analysis of longitudinal cohort data,	Cross-sectional survey of effect of maternal depressive symptoms on early	CES-D <sup>4</sup>	<ul style="list-style-type: none"> <li>• Mothers with depressive symptoms has reduced chance of breastfeeding (OR, 95%CI = 0.73, 0.61-0.88)</li> </ul>

Hou, 2006) USA	n=4874.	parenting practices at 2-4 months.		
(McCoy, Beal, Shipman, Payton, & Watson, 2006) USA	Convenience sample of 209 women	Retrospective investigation of medical records at 4 weeks postpartum, examining the link between depression and maternal characteristics including breastfeeding	EPDS <sup>1</sup>	<ul style="list-style-type: none"> <li>• Not breastfeeding associated with higher risk of probable depression (RR = 2.04, P&lt;0.05).</li> </ul>
(Pippins, Brawarsky, Jackson, Fuentes-Affleck, & Haas, 2006) USA	Longitudinal diverse cohort of pregnant women n=1448.	Prospective investigation of relationship between depressive symptoms in each trimester of pregnancy, and 8 wks after birth, and bf initiation and <1 month duration	CES-D <sup>4</sup>	<ul style="list-style-type: none"> <li>• No differences in initiation according to symptomatology</li> <li>• Women reporting persistent depressive symptoms (&gt;one time in preg), were more likely to bf for &lt;1 month (OR 95% CI = 1.77, 1.1-2.9)</li> </ul>
(Dunn, Davies, McCleary, Edwards, & Gaboury, 2006) Canada	Consecutive representative sample of 627 women recruited from 4 maternity hospital sites after birth	Cross-sectional investigation of relationship between 4 factors and bf duration at 6 wks: confidence with bf, postpartum depression, bf supplementation and adequacy of support	EPDS <sup>1</sup>	<ul style="list-style-type: none"> <li>• EPDS score &gt;12 significantly associated with likelihood of weaning at 6 weeks, even when age and education controlled for (OR=4.6)</li> <li>• Lack of confidence associated with bf cessation at 6 weeks (OR = 2.7)</li> </ul>
(Dennis & McQueen, 2007) Canada	Population based sample recruited in pregnancy from various antenatal settings, or 2 days postnatally by health visitor	Prospective investigation of relationship between infant feeding outcomes and maternal depressive symptoms at 1,4,and 8 weeks after birth	EPDS <sup>1</sup>	<ul style="list-style-type: none"> <li>• No differences in well-being between bf and non-bf at one week</li> <li>• Elevated EPDS score at one week after birth predicted bf cessation by 8 weeks</li> </ul>
(O'Brien, Buikstra, & Hegney, 2008) Australia	375 women recruited from 2 postnatal hospital sites (private and public)	Prospective investigation of relationship between psychological characteristics and breastfeeding duration at 14 days and 6 months postpartum	DASS <sup>5</sup>	<ul style="list-style-type: none"> <li>• No relationship depression or anxiety and breastfeeding duration.</li> <li>• When socio-demographic characteristics were controlled for, self-efficacy, and planned duration strongest predictors of duration</li> </ul>

1. Edinburgh Postnatal Depression Scale (Cox et al., 1987)

2. Profile of Mood States (McNair et al., 1971)

3. Life Events Survey (Norbeck, 1984)

4. Centre for Epidemiological Studies – Depression (Radloff, 1977)

5. Depression, Anxiety and Stress Scale (Lovibond & Lovibond, 1995)

Cross-sectional surveys of large representative cohorts of women have reported a significant association between breastfeeding cessation and probable depression using standardised assessments of maternal mood at 2-4 months postpartum (Dunn et al., 2006; McLearn et al., 2006; Warner et al., 1996). Astbury et al (1994) found more depressive symptoms at 8-9 months postpartum reported by women who had not breast fed at all since the birth. Two smaller cross-sectional studies, one of a convenience sample (McCoy et al., 2006), and one with less than 50% response (Hatton et al., 2005) have also noted an association between depressive symptomatology and breastfeeding cessation. In these investigations, the direction of the observed relationship was not proposed by the investigators, nor established by the results. One study of 375 women reported no association between depressive symptomatology on a standardised instrument (Depression, Anxiety and Stress Scale) (Lovibond & Lovibond, 1995) and breastfeeding duration (O'Brien et al., 2008).

One prospective Australian study recruited 1745 women from two large maternity hospitals, and assessed their well-being at birth, and at 2, 6 and 12 months postpartum using the Edinburgh Postnatal Depression Scale (Cox et al., 1987). Henderson et al. (2003) reported greater breastfeeding cessation at each stage of data collection for women who had reported probable depression at any time than for women who reported symptoms, but did not meet the score-thresholds for probable depression. They also found that for all women who developed significant depression in the first 6 months after birth, 93% of these stopped breastfeeding after becoming symptomatic. The authors proposed that the mechanism of the impact of postnatal depression on breastfeeding is multi-factorial, but that depression is characterised by low efficacy, guilt, compromised cognition and low self-esteem that would in turn make breastfeeding difficulties seem insurmountable, pre-empting early cessation. Alternatively, breastfeeding problems might contribute to these feelings, and thus in turn to depression. Two further large-scale longitudinal investigations have replicated the result, finding that self-reported depressive symptomatology in the first two months after birth predicted breastfeeding cessation (Dennis & McQueen, 2007; Pippins et al., 2006).

Less is known about whether breastfeeding problems and feeding difficulties have significant psychological sequelae. It is estimated that approximately one in five breastfeeding women experience mastitis (Amir, Forster, Lumley, & McLachlan, 2007), and a much greater proportion experience nipple pain or trauma (LH Amir et al., 1996). Few studies have attempted to investigate whether breastfeeding problems contribute to maternal fatigue, distress, worry or irritability, or erode maternal confidence and sense of competence. Amir et al (1996) demonstrated that breastfeeding women experiencing nipple pain reported significantly more mood disturbance including confusion, anxiety and distress than lactating women without nipple pain. Further, these authors reported that once the pain was resolved, participants' mood returned to that comparable to a sample of breastfeeding women. These authors conclude that women experiencing nipple pain require psychological support, and that their findings need to be replicated in further rigorous investigations. However, the effect of breastfeeding difficulties on maternal mental health has not been rigorously investigated, nor have the effects of treating feeding difficulties been adequately tested.

Research and understanding about women's mental health during reproductive life has gradually evolved. The psychoanalytic focus on individual pathology to biological determinants has given way to the current conceptualisations of mental health emphasising that maternal mental health during the perinatal period is determined by a range of contextual factors including personal, social and structural characteristics. Risk factors for which there exists high quality, strong evidence of a relationship with worse maternal postpartum mood include personal history of mood disturbance, psychological symptoms in pregnancy, inadequate emotional and practical support, a poor quality relationship with intimate partner and adverse, demanding coincidental life events. Emerging evidence has identified that infant sleeping and settling difficulties, poor physical health and breastfeeding problems might also influence women's capacity to negotiate the psychological adjustment necessary following the



birth of a child, and to develop a sense of confidence and competence in early parenting.

Evidence provided by Chen et al (2005) demonstrate that economic and policy factors, as well as structural level gender discrimination all influence women's mental health outcomes, possibly even more so than personal and family characteristics. In Australia, pregnancy and first childbirth in commonly includes participation in the paid workforce. However, employment characteristics, and the relevant public policies that shape employment conditions for women during pregnancy and in the postpartum have been largely ignored in investigations of women' perinatal mental health. A central component of the experience of resuming postpartum employment is regular separation from the infant. The maternal subjective experience of the mother-infant emotional relationship, including maternal anxiety about separation from her infant for employment participation have not been widely investigated in studies of maternal mental health following birth, or in those investigating maternal employment decisions.



# **CHAPTER 3 MATERNAL-INFANT ATTACHMENT AND MATERNAL SEPARATION ANXIETY**

In the context her existing social, family and partner relationships, following childbirth, a woman must form a new relationship with her baby. The nature and process of a woman's growing relationship, first with her unborn baby and then with her infant, has been studied over a number of decades (M Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1958; Condon, 1993; Leifer, 1980; Lumley, 1979; Main & Goldwyn, 1998). It is plausible that the nature and quality of the developing attachment relationship with to her baby is a salient factor in considerations of women's well-being during childbearing. It is also likely that the nature of this attachment is relevant to women's feelings, thoughts and anxiety about separation from their infant, including for the purpose of participation in the paid workforce. Investigations of the mother-foetal and then mother-infant relationship have been predominantly conceptualised as assessments of the nature and course of maternal "attachment" to her child.

## **3.1 THEORETICAL DEVELOPMENT OF THE ATTACHMENT CONSTRUCT**

Infant-to-mother attachment has been comprehensively conceptualised and researched by attachment theorists including Bowlby (1969), Ainsworth (1978) and Main (1996) who view this relationship as a central construct in the understanding of infant psychological development. Attachment as a construct was described by Bowlby in the 1940's as a means to elaborate the dynamic nature of the mother-infant bond, (1969). Attachment is defined as any behaviour that results in a person desiring to attain proximity to another particular individual, one who is generally seen as more adept at functioning in the world (Bowlby, 1982). Observing infants and children who

were orphaned or hospitalised, Bowlby (1958) noted that over time, in the absence of a primary attachment figure, infant social, cognitive and emotional development was slowed or arrested. Drawing on an evolutionary perspective, Bowlby understood that from birth, infants are engaged in behaviours – smiling, crying, and clinging - that function to maintain proximity and elicit ongoing care from their primary attachment figures, most commonly their mother (Bowlby, 1958). Maternal responses to these infant cues in turn reinforce these attachment behaviours, and provide for the infant an understanding of the quality of support, care and affection that they can expect from other attachment figures (Bowlby, 1973). Attachment theorists posited that this primary attachment relationship was fundamental to the development of an “internal working model” for future attachment experiences, one that guides perceptions, behaviours and self-image within close, intimate, loving relationships (Ainsworth & Wittig, 1969; Bowlby, 1973).

Bowlby’s work emphasised the importance and nature of the attachment between an infant and her or his mother, reflecting the gender norms and gendered division of care-giving work prevailing at the time his theory was emerging (Feeney, Hohaus, Noller, & Alexander, 2001, p. 27). More recently, feminists have drawn attention to other aspects of Bowlby’s theories that described a range of attachment figures, such as fathers and siblings, challenging the absolute primacy of maternal care that is often assumed to be the central tenet in attachment theory (Blaffer-Hrdy, 1999; Contratto, 2002; Parker, 1995). In 1982, Bowlby himself revised his early theory to acknowledge that an infant’s attachment relationships, while generally formed with their mother, can also be extended to a few select individuals (Bowlby, 1982).

The development of an affectionate, responsive and caring bond between the mother and her infant has long been understood as vital to the physical, emotional and psychological health and developments of infants. More recently, it has been understood that the development in the mother of a close, affectionate and satisfying bond to the infant is equally as crucial to the development of a confident and satisfying maternal identity (Leifer, 1977, 1980; Mercer, 1985; Priel & Besser, 2000). While mother-infant attachment is most observable after the birth, it is increasingly

understood that this relationship begins to develop in pregnancy. Psychological adjustment to pregnancy and mothering thus involves the development of a new relationship with the baby, and the integration of care-giving behaviours towards the infant into women's existing self-identity, (Mercer, 1985).

### **3.1.1 Separation experiences and attachment “styles”**

In Bowlby's (1958) clinical observations, prolonged separation of an infant from their mother interrupted proximity-seeking attachment behaviours, and hence disrupted the development of the maternal-infant relationship. Bowlby observed grief, depression and anxiety in orphaned or hospitalised infants, which manifested in despair, withdrawal and detachment by the infant. Based on these observations, Bowlby characterised the experience of “separation anxiety” as an intrinsic fear, occurring when proximity seeking attachment behaviours were activated in the infant, in the absence of the primary attachment figure (Bowlby, 1960).

Ainsworth, a student of Bowlby's, elaborated the study of separation experiences in order to characterise the nature of the infants' attachment to its mother (Ainsworth et al., 1978). Separation experiences are a fundamental aspect of attachment relationships, and the successful negotiation of separation is an indication of emotional health and well-being (Hock & Lutz, 1998).

Three primary “styles” of infant-to-mother attachment were described by Ainsworth through repeated elaborate observations of infant behaviour during a structured laboratory-based procedure, called the “Strange Situation” test. The procedure, conducted with one year old infants and their parents, involves two short-term separations of infant and mother in a “strange” laboratory-based setting. The infant's reunion behaviours are observed to investigate how infants manage their emotions, yielding an indicator of the nature of the infant's attachment to her/his mother (Ainsworth, 1967). “Securely” attached infants are able to separate readily from their parents during the procedure, and display pleasure and affection upon reunion with their parents. These infants have learned to trust that they have a loving, constant, secure base from which to separate and explore the world, and to which they can return when needing comfort. “Avoidantly” attached infants, however, avoid contact

with their parents upon separation and reunion, and do not seek comfort or demonstrate immediate pleasure at reunion with their parents in the manner of securely attached infants. This suggests that avoidantly attached infants have learned, through parental responses, not to be able to rely on, or trust in consistent care or comfort from their parents. These infants minimise their own outward display of distress, and this ultimately fosters emotional distance and independence. “Ambivalently” attached infants demonstrate anxiety about separation from their parents, but are not comforted by their parents’ return upon reunion. This suggest that these infants have experienced inconsistent emotional comfort from their caregivers, and are highly anxious about separation experiences, and unable to trust in consistent comfort provided to them by their caregivers.

Attachment theory describes how these attachment styles are formed in infancy and are then observable in adults, termed “Adult Attachment Style” (Main, 1996). “Secure” attachment style is characterised by warm, affectionate, responsive relationships, where sensitive, appropriate, care and emotional support from loved ones and others is trusted and expected. “Avoidant” adults actively avoid intimacy, and are often emotionally distant, mistrusting and rejecting, dismissing the importance of warm, intimate relationships. “Anxious” attachment is characterised by high dependency, and anxiety and fear of abandonment. While some attachment theorists have argued that these attachment styles are fixed and stable over the life-course, and form an aspect of adult personality (Bowlby, 1969; Grossman, Fremmer-Bombik, Rudolph, & Grossman, 1988), it is possible that attachment styles are also influenced by life experiences, social circumstances and adult relationships (Feeney, Alexander, Noller, & Hohaus, 2003; Feeney et al., 2001, p. 39). It is understood however that a woman’s attachment style influences her capacity to form an attachment to her unborn baby, and then infant (Siddiqui & Hagglof, 2000b; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005; van Ijzendoorn, 1995).

### 3.2 DEVELOPMENT OF MATERNAL ATTACHMENT TO HER UNBORN BABY

The mother-infant attachment relationship begins in pregnancy. Part of maternal psychological adjustment to motherhood involves the developing relationship with her unborn baby. Studies that have explored the nature and correlates of the developing maternal relationship with her unborn infant during pregnancy have been summarised in Table 3.1.

**Table 3.1 Studies investigating nature and correlates of maternal attachment to unborn baby**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Leifer, 1980)  USA	19 white, middle-class women first pregnancy	Prospective study to identify the psychological changes of pregnancy and early postpartum	Psychoanalytic interviews each trimester of pregnancy and 3 days, 2 and 7 months postpartum	<ul style="list-style-type: none"> <li>• Identified the relationship between anxiety about foetal health and bonding / attachment</li> <li>• Strengthened over time, anxiety as preparatory and sign of attachment to developing baby.</li> </ul>
(Lumley, 1979)  Australia	30 married, nulliparous women, recruited in pregnancy	Prospective study, exploring maternal feelings and thoughts about developing foetus from conception to birth	Open-ended structure interviews, one in each trimester of pregnancy	<ul style="list-style-type: none"> <li>• Relationship with unborn baby increased over time</li> <li>• Infant imagined as a 'real person' by third trimester.</li> <li>• Bonding stronger in women who were emotionally supported by husband.</li> </ul>
(Gaffney, 1986)  USA	100 nulli- and multi-parous women in third trimester, recruited in antenatal classes	Cross sectional investigation of the association of maternal-foetal attachment and state / trait anxiety	MFAS <sup>1</sup> STAI <sup>2</sup>	<ul style="list-style-type: none"> <li>• Inverse modest correlation (<math>r = -0.26</math>, <math>p &lt; 0.01</math>) between high temporary state anxiety and the poor emotional attachment to unborn baby</li> <li>• No correlation between trait anxiety and MFAS scores</li> </ul>
(Grace, 1989)  USA	69 pregnant women, nulli- and multi-parous recruited at 16 weeks gestation, from a single private obstetric practice	Describe longitudinally characteristics of maternal-foetal attachment, monthly assessments from 16 weeks gestation to 6 postpartum	MFAS <sup>1</sup>	<ul style="list-style-type: none"> <li>• Mean scores increased over pregnancy, gestational age accounted for 19% (<math>p &lt; 0.001</math>) of variance in MFAS scores</li> <li>• No significant relationship with any demographic variables</li> </ul>

		weeks		
(Fuller, Moore, & Lester, 1993)  USA	339 women recruited in obstetric clinics, socio-economically and ethnically diverse sample, between 33-40 weeks gestation	Cross sectional investigation, third trimester examining the relationship between family functioning and maternal-fetal attachment	MFAS <sup>1</sup>	<ul style="list-style-type: none"> <li>• Having a first baby, white ethnicity, professional occupation of primary income in family contributed to higher attachment to foetus.</li> <li>• Small variance (6%, <math>p &lt; 0.005</math>) in maternal attachment explained by satisfaction with partner/family functioning.</li> </ul>
(Fowles, 1996)  USA	Convenience sample of 136 nulliparous women recruited through antenatal classes	Prospective study of the relationship between prenatal attachment and postnatal maternal role attainment at 9 weeks.	Study-specific	<ul style="list-style-type: none"> <li>• Prenatal attachment to baby positively correlated with: <ul style="list-style-type: none"> <li>• maternal perceptions of competence (<math>r = 0.40</math>, <math>p &lt; 0.001</math>),</li> <li>• developing identity and self-concept as mother (<math>r = 0.25</math>, <math>p &lt; 0.01</math>).</li> </ul> </li> </ul>
(Muller, 1996)  USA	228 socioeconomically advantaged women recruited from antenatal classes, most nulliparous	Prospective study of correlation between pre-natal in late pregnancy and postnatal maternal attachment to infant 1-2 months after birth	PAI <sup>3</sup> MAI <sup>4</sup>	<ul style="list-style-type: none"> <li>• Positive correlation between high pre- and high postnatal attachment scores (<math>r = 0.46</math>, <math>p &lt; 0.001</math>).</li> </ul>
(Condon & Corkindale, 1997)  Australia	238 multigravid women recruited from antenatal public hospital clinics	Cross-sectional study to examine association between depression, social support and antenatal emotional attachment to unborn baby	AAQ <sup>5</sup> EPDS <sup>6</sup> PoMS <sup>7</sup> HADS <sup>8</sup> IBM <sup>9</sup>	<ul style="list-style-type: none"> <li>• First pregnancy, caring intimate relationship, high social support, and fewer depressive / anxious symptoms associated with higher attachment to unborn baby (<math>R^2 = 0.38</math>, <math>p &lt; 0.001</math>).</li> <li>• Women with lowest quartile attachment scores reported more depression / anxiety than remainder of sample</li> </ul>
(Siddiqui, Hagglof, & Eisemann, 1999)  Sweden	171 pregnant women, mixed gravidity recruited in third trimester from several, diverse urban /rural health centres, representative of population	Cross-sectional study of how pregnant women develop attachment to unborn baby, 35-39 weeks gestation	PAI <sup>3</sup>	<ul style="list-style-type: none"> <li>• Positive correlation between supportive partner relationship and attachment to foetus (<math>r = 0.23</math>, <math>p &lt; 0.01</math>)</li> <li>• Higher attachment scores in women expecting a first baby than in those in a subsequent baby</li> </ul>
(Priel & Besser, 2000)  Israel	115 women recruited from antenatal community clinics in third trimester of first pregnancy	Prospective study, investigating whether antenatal attachment is predicted by adult attachment style	AAQ <sup>5</sup> RQ <sup>10</sup>	<ul style="list-style-type: none"> <li>• Adult Attachment Style contributes to quality of antenatal attachment to foetus.</li> <li>• Women with secure adult attachment styles had significantly higher mean scores on AAQ (47.8) than women with dismissive (43.2), pre-occupied</li> </ul>



				(39.1) or fearful (44.7) relational styles [F(df) = 28.1(3), p<0.01]
(Siddiqui & Hagglof, 2000b) Sweden	171 pregnant women, mixed gravidity recruited in third trimester from several, diverse urban /rural health centres, representative of population	Cross-sectional investigation of expectant mothers recall of their own relationship with parents and affect on antenatal attachment to foetus in third trimester	PAI <sup>3</sup> OMUB <sup>10</sup>	Remembered maternal emotional warmth positive correlation with: <ul style="list-style-type: none"> <li>• pleasure in foetus (<math>r = 0.22</math>, <math>p=0.01</math>)</li> <li>• thoughts about foetus (<math>r=0.20</math>, <math>p&lt;0.01</math>)</li> <li>• overall strength of attachment to unborn baby (<math>r=0.16</math>, <math>p=0.05</math>). Suggests inter-generational nature of attachment relationships</li> </ul>
(Siddiqui & Hagglof, 2000a) 2000 Sweden	100 mother-infant pairs at 12 weeks postpartum, representative sample	Prospective study, investigating whether antenatal attachment in third trimester predicts mother-infant involvement assessed by observation 12 wks after birth	PAI <sup>3</sup>	<ul style="list-style-type: none"> <li>• More prenatal attachment strongly positively associated with more postnatal interaction and involvement with their 12 week old infant (<math>r=0.51</math>, <math>p&lt;0.001</math>).</li> </ul>
(Hart & McMahon, 2006) Australia	53 primigravid women recruited from low risk public obstetric clinics, 20-38 weeks pregnant	Cross-sectional study exploring association mental health and antenatal attachment to unborn baby	AAQ <sup>5</sup> STAI <sup>2</sup> EPDS <sup>6</sup>	<ul style="list-style-type: none"> <li>• Higher state (<math>r=0.40</math>, <math>p=0.004</math>) and trait (<math>r=0.35</math>, <math>p=0.01</math>) anxiety related to poorer quality attachment to unborn baby.</li> <li>• No significant relationship antenatal depression and quality of attachment.</li> </ul>

1. Maternal Fetal Attachment Scale (Cranley, 1981)
2. State-Trait Anxiety Inventory (Spielberger et al., 1970)
3. Prenatal Attachment Inventory (Muller, 1993)
4. Maternal Attachment Inventory (Muller, 1994)
5. Antenatal Attachment Questionnaire (Condon, 1993)
6. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
7. PoMS (McNair et al., 1971)
8. Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983)
9. Intimate Bonds Measure (Wilhelm & Parker, 1988)
10. Own Memories of Upbringing (Perris, Jacobsson, Lindstrom, vonKnorring, & Perris, 1981)

### 3.2.1 Course of maternal attachment to unborn baby

Early studies, predominantly observational, of women's antenatal emotional attachment to their unborn baby noted that the strength of women's attachment to the baby increased over the course of the pregnancy, particularly when first foetal movements were felt, and again immediately before the birth (Leifer, 1977, 1980; Lumley, 1979) (see Table 3.1). In Lumley's study of 30 Australian women (1979), participants described their increasing capacity to imagine their unborn infant as a 'real person' as their pregnancy progressed.

Since these exploratory studies, three standardised assessments of maternal antenatal emotional attachment have been constructed to investigate empirically the frequency, nature, and intensity of women's thoughts and feelings about their unborn baby: the Maternal Fetal Attachment Scale (MFAS) (Cranley, 1981), the Prenatal Attachment Inventory (PAI) (Muller, 1993) and the Antenatal Attachment Questionnaire (AAQ) (Condon, 1993). Each of these scales uses a set of fixed-choice items to quantify women's affection and attachment to their baby, and have been used in more recent studies of maternal-foetal attachment, as summarised in the Table 3.1 above.

One longitudinal study of 69 pregnant women using monthly assessments of the MFAS confirmed that women's pre-occupation with and affection towards their unborn baby increased from 16 weeks to birth (Grace, 1989). This study however, was based on a convenience sample of women recruited from a single, private obstetric practice. It was not known whether the same effect would be observed in women from a range of backgrounds and circumstances.

Cross-sectional studies of maternal antenatal attachment have found consistently stronger, more intense quality of attachment in the third trimester in nulliparous women, compared to multiparous pregnant women (Condon & Corkindale, 1997; Fuller et al., 1993; Siddiqui et al., 1999). These authors have concluded that nulliparous women are highly pre-occupied with their unborn babies. Multiparous women, however, have their attention and thoughts affected by the affection, demands and time necessary to care for other children.

### **3.2.2 Maternal attachment style and maternal-foetal relationship**

Within the attachment construct, adult attachment relationships are characterised by individual internal working models of attachments (Ainsworth & Wittig, 1969; Bowlby, 1973). Internal working models are formed during infancy and early childhood, and influence behaviours and emotions within close, loving relationships (Main, 1996; van Ijzendoorn, 1995). Studies have therefore investigated the relationship between women's past and present experiences of attachment relationships and her antenatal attachment to her unborn infant. Details of these studies are summarised above, in Table 3.1.

Two cross-sectional studies, one of 171 Swedish women, and one of 115 Israeli women, found that women who remembered more emotional warmth from their own mothers reported stronger attachment to their unborn baby than women reporting less warmth and affection from their own mothers in the third trimester of pregnancy (Priel & Besser, 2000; Siddiqui & Hagglof, 2000b). The authors conclude that this supports attachment theory that posits early childhood experiences of care as fundamental to the development of caregiving capacity. Women who themselves had experienced affection and care from their own mothers had an optimal model of an intimate, caring relationship to provide for their own children, beginning in pregnancy.

Similarly, three cross-sectional studies (Condon & Corkindale, 1997; Fuller et al., 1993; Siddiqui et al., 1999), and one prospective semi-structured interview-based study of 30 women (Lumley, 1979) have found that women who report a positive, emotionally supportive relationship with their partner are more likely to report a more intense, affectionate attachment to their unborn infant than women who feel less well supported by their partner. Only one of these investigations used a standardised assessment of the quality of the intimate partner relationship (Condon & Corkindale, 1997). The interpretation offered by these authors is that partner care, support, and excitement about the impending birth contributes to women's adjustment to pregnancy, including the development of a strong emotional bond with her unborn infant. It is also well accepted however, that women who have developed secure attachment styles as an adult, based on their own childhood experiences of care, are more likely to develop warm, secure and satisfying relationships in general, including with an intimate partner and an unborn child, than women who have less secure, more ambivalent or avoidant attachment styles (Main, 1996; van Ijzendoorn, 1995), and this is a plausible interpretation of the associations observed in these studies.

### **3.2.3 Maternal attachment to unborn baby and maternal well being**

Several studies have investigated the relationship between women's well-being and the nature of antenatal attachment to their unborn baby (see Table 3.1). One Australian study of 238 women assessed in the third trimester of pregnancy found that

women who reported more depressive symptoms on a standardised measure also report less intense, less frequent thoughts about their unborn baby than women who have fewer depressive symptoms (Condon & Corkindale, 1997). Conversely, Hart et al. (2006) found no association between antenatal depressive symptoms and quality of maternal attachment to unborn baby at 20-38 weeks gestation in their study of 53 nulliparous Australian women recruited from a public obstetric clinic.

In the same study, Hart et al., found a modest inverse association between high maternal anxiety and less emotional attachment to their unborn baby. This replicated the results of Gaffney's (1986) study of a convenience sample of 100 women in the third trimester of pregnancy. Gaffney reported a modest inverse correlation between current state anxiety and maternal-foetal attachment using standardised assessments of both. Two authors have suggested that some anxiety about the foetus is adaptive, appropriate and a sign of developing maternal affection and attachment (Gaffney, 1986; Leifer, 1977), indicating that some anxiety and concern about the foetus is expected and healthy. It is plausible that too much maternal anxiety about the unborn baby is an indicator of ambivalent or avoidant attachment style, but the optimal range of maternal anxiety about an unborn baby during pregnancy has not been well described.

Overall, studies of maternal attachment to her unborn baby have been limited by cross-sectional, rather than prospective design (Condon & Corkindale, 1997; Hart & McMahon, 2006; Siddiqui & Hagglof, 2000b). The development of the maternal-infant bond occurs within the context of women's past and present experiences of intimate relationships, but from cross-sectional studies, it is not possible to ascertain to what degree maternal-foetal attachment is influenced by mothers' attachment style, formed by their early experiences being nurtured. The few prospective studies that have been conducted have relied on non-representative, voluntary, or convenience samples of women (Fowles, 1996; Muller, 1996; Priel & Besser, 2000). It appears however, that mother-infant attachment grows and strengthens over the course of the pregnancy, but this has not been well-investigated in studies of maternal mental health and well-being.

### 3.3 POSTNATAL MOTHER-INFANT EMOTIONAL ATTACHMENT

A small body of evidence, of mixed methodological quality, has investigated the nature, course and correlates of maternal attachment to her newborn baby and the relationship of this to maternal mental health. These studies are summarised in Table 3.2.

**Table 3.2 Studies investigating nature and correlates of maternal-to-infant attachment**

Authors Date Country	Sample	Aims and Study Design	Measures	Main Findings
(Mercer & Ferketich, 1990)  USA	121 high obstetric-risk women, 182 low obstetric risk women, parity unknown, recruited during postnatal stay	Prospective study investigating predictors of parental attachment at 1 week and 8 months after birth, including comparison of high and low obstetric risk women	Attachment assessment <sup>1</sup> Unpublished parenting competence scale	<ul style="list-style-type: none"> <li>No differences in postnatal attachment between women who had pregnancy / delivery / infant complications and those considered to be of low obstetric risk, at 1 week or 8 months postpartum</li> <li>Parental competence (defined as skills and comfort in role) major predictor of postnatal attachment in first 8 months (<math>\beta=0.44</math>, <math>p&lt;0.001</math>).</li> </ul>
(Condon & Corkindale, 1998)  Australia	202 women recruited from public antenatal clinics	Prospective study exploring nature and correlates of maternal attachment to infant at 4 weeks, 4 and 8 months	PAQ <sup>2</sup> HaDS <sup>3</sup> IBM <sup>4</sup> SSQ <sup>5</sup> ICQ <sup>6</sup> PoMS <sup>7</sup>	<p>More intense attachment to infant at 4 months correlated with:</p> <ul style="list-style-type: none"> <li>less “difficult” infant behaviour (<math>r=-0.36</math>, <math>p&lt;0.001</math>),</li> <li>fewer depressive symptoms (<math>r = -0.46</math>, <math>p&lt;0.001</math>),</li> <li>more social support (<math>r = 0.20</math>, <math>p&lt;0.01</math>),</li> <li>more caring intimate relationship (<math>r = 0.27</math>, <math>p&lt;0.01</math>)</li> </ul>
(Scopesi, Viterbori, Sponza, & Zuchinetti, 2004)  Italy	210 women recruited in two postnatal wards of maternity hospitals	Explore and validate an Italian version of the PAQ. Cross sectional design.	PAQ <sup>2</sup> EITQ <sup>8</sup>	<ul style="list-style-type: none"> <li>Higher mean maternal attachment scores in infants perceived as “Easy rather than “difficult” (82.5 versus 79.7, <math>p&lt;0.01</math>).</li> </ul>
(Edhborg, Matthiesen, Lundh, & Widstrom, 2005)	106 women recruited on postnatal ward of a major maternity hospital	Prospective study investigating the relationship between postpartum blues	EPDS <sup>9</sup> PBQ <sup>10</sup> ICQ <sup>6</sup>	<ul style="list-style-type: none"> <li>Less attachment to infant at two months predicted by higher 2 month EPDS score, and difficult infant temperament at two months (<math>R^2 = 0.62</math>).</li> </ul>

Sweden		/ depression on mother-to-infant attachment		
(Wilson, Rholes, Simpson, & Tran, 2007) USA	188 nulliparous women, recruited from antenatal classes	Prospective study investigating attachment style and perceptions of labour, early parenting, infants and partners	Adult AQ <sup>11</sup> Unpublished assessment of attachment to infant	• Women who experienced a more avoidant attachment style reported less closeness and affection for infant at two weeks after birth ( $\beta = -0.21, p < 0.01$ ).

1. Based on items used by Leifer (1980)
2. Parent-to-infant Attachment Questionnaire (Condon & Corkindale, 1998)
3. Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983)
4. Intimate Bonds Measure (Wilhelm & Parker, 1988)
5. Social Support Questionnaire (Sarason et al., 1987)
6. Infant Characteristics Questionnaire (Bates et al., 1979)
7. Profile of Mood States (McNair et al., 1971)
8. Early Infant Temperament Questionnaire (Medoff-Cooper, Carey, & McDevitt, 1993)
9. Edinburgh Postnatal Depression Scale (Cox et al., 1987)
10. Parental Bonding Questionnaire (G. Parker et al., 1979)

### 3.3.1 Course and nature of maternal-to-infant attachment

Several studies, summarised in Table 3.2, have examined longitudinally the relationship between mothers' antenatal attachment to their unborn infant and the postnatal mother-infant relationship. Fowles (1996) found a moderate, positive correlation between higher prenatal attachment to unborn baby, and more maternal confidence including a positive evaluation of self as a mother at 9 weeks after birth. This study used study-specific assessments of maternal antenatal attachment. Muller (1996) replicated this finding, and reported a modest positive correlation between antenatal attachment in the third trimester of pregnancy and postnatal infant attachment at 1-2 months after birth, using standardised assessments of maternal attachment. Although of an adequate sample size ( $n=228$ ), this study was of socio-economically advantaged women and the findings cannot be generalised to women of less socio-economic advantage. Siddiqui and Hagglof (2000a) assessed antenatal attachment in the third trimester of pregnancy, and compared it to observed behavioural interactions between mother and infant at 12 weeks. They found that warm, intense and affectionate thoughts of an unborn baby predicted more frequent postnatal interaction and involvement with the infant three months after the birth. Taken together, these studies suggest that more frequent, loving thoughts of the unborn baby are indicative of a continuum of attachment for the infant that begins in pregnancy.

One prospective study compared postnatal attachment at one week and eight months postpartum in 121 women considered to be of high obstetric risk, defined as hospitalisation in pregnancy, to 182 women who had no, or only minor pregnancy complications that readily responded to routine hospital care (Mercer & Ferketich, 1990). At one week, ‘high-risk’ women reported a stronger more intense attachment to their newborn infants, but this difference was not observed at 8 months. Rather, stronger attachment to their infants was reported by women who felt a high sense of maternal competence, and who reported that they felt comfortable in their role as a mother.

Several studies have suggested a relationship between infant behaviour and the quality of attachment that women feel towards their infants in the first postpartum year. Three studies have found an association between perception of the infant as less difficult and easier to manage, and reporting a more intense, affectionate attachment to the infant (Condon & Corkindale, 1998; Edhborg et al., 2005; Scopesi et al., 2004). Condon et al. (1998) reported cross-sectional analyses of their 4 month data in a longitudinal study, and Edhborg et al. (2005) reported similar findings from their two-month postnatal data, so the direction of this observed association is not well understood. However, it is possible that “easy” infants are those who respond to maternal caregiving, fostering mothers’ sense of competence and confidence, which in turn promotes a more satisfying, reciprocal mother-infant bond in the early months of life.

### **3.3.2 Maternal-to-infant attachment and maternal attachment style**

Several studies have examined the relationship of women’s early experiences of care, and their internal working model of relationships, to the nature and quality of emotional attachment to their infant. The details of these studies are summarised in Table 3.2.

One American prospective investigation of 188 primiparous women (Wilson et al., 2007) identified women’s attachment style using the Adult Attachment Questionnaire (Simpson, Rholes, & Phillips, 1996), a standardised instrument that classifies an individual’s attachment style within intimate relationships. Using a study-specific assessment of feelings of closeness and attachment to their 2-week old infants, this

study found low emotional closeness to the infant reported by women whose own attachment style was classified as avoidant. The authors conclude that this is consistent within the construct of attachment, as avoidantly-attached adults fear closeness, dependence and intimacy in general.

Condon and Corkindale (1998) recruited 202 Australian women via antenatal outpatient clinics in a public hospital setting and followed them up at 4 weeks, and 4 and 8 months after the birth, using standardised assessments of maternal well-being, quality of the intimate partner relationship and satisfaction with peer support. They found that women who felt poorly emotionally supported by peers, or who reported inadequate care and closeness in their relationship with their partner also reported a lower level of affection and closeness to their infant than women experiencing more peer and partner support. The authors do not draw any conclusions pertaining to women's internal working model of attachment and the subsequent bond with their infant, but suggest that a comparison between mothers' attachment style and their emotional bond with their infant warrants further investigation.

While it appears that there is a positive relationship between antenatal and postnatal attachment, the available evidence has not demonstrated consistently whether the mother-infant attachment relationship is determined exclusively by women's attachment style, and therefore fixed, or to what extent it interacts with psychosocial factors and social circumstances, and is therefore shaped by experience across the transition to motherhood.

### **3.3.3 Mothers' attachment to their infant and emotional well-being**

Given the substantial influence relationships have on women's mental health outcomes during childbearing, it is possible that women's relationship with the infant has maternal psychological and emotional sequelae. Attachment theory has established the adverse consequences of poor quality attachment relationships on infant mental health and development (Ainsworth et al., 1978; Bowlby, 1958). Understanding of the dynamic, reciprocal nature of attachment relationships also suggests that the nature of mother-to-infant attachment will have an influence on maternal mood and well-being following birth.



Two prospective studies, using standardised assessments of mother-to-infant attachment have found that women reporting more anxiety and depressive symptomatology experience a less intense, less pleasurable bond with their infant (see Table 3.2). Edhborg et al. (2005), in a prospective study of 106 mother-infant pairs, found that probable depression at two months after birth was independently associated with less affectionate mother-to-infant attachment at this time (Edhborg et al., 2005). Similar results have been reported in an Australian study of 202 women who completed the Postnatal Attachment Questionnaire (Condon & Corkindale, 1998), and standardised assessments of maternal mood, including the Profile of Mood States (McNair et al., 1971). At four months, lower mother-infant attachment was associated with higher levels of depression, anger and anxiety symptoms (Condon & Corkindale, 1998).

The direction of these associations is not clear. Some recent attachment research has identified that adults whose attachment style is avoidant or insecure are more prone to clinical depression, in part due to their compromised ability to form lasting or satisfying emotional bonds, or to garner appropriate emotional and practical support during stressful life events (Bifulco et al., 2004; Bifulco, Moran, Ball, & Bernazzani, 2002), including the birth of a child. In support of this conceptualisation, there is a growing body of evidence of a link between the quality of recalled relationship with parents and postpartum depression. In general, prospective studies of postpartum depression have found that women who remember their own childhoods as characterised by low maternal care, or high over-protection, indicating a more anxious attachment style, are more likely to experience postpartum depression than women reporting a more positive and caring childhood experience (Boyce et al., 1991; Crockenberg & Leerkes, 2003; McLaren, Kuh, Hardy, & Mishra, 2007; McMahon, Barnett, Kowalenko, & Tennant, 2005).

In addition, attachment research has further elaborated the “inter-generational transmission of attachment”, whereby a mother’s secure attachment style influences her capacity to provide care to her infant, and to respond sensitively to her infant’s needs for affection and proximity. Research has focussed on the effect of this

maternal care-giving capacity on infant-to-mother (but not mother to infant) attachment security. Mothers whose attachment style is secure are more likely to have securely attached infants than women with anxious or avoidant attachment styles (Fonagy, Steele, & Steele, 1991; Main, 1996; Slade et al., 2005; van Ijzendoorn, 1995).

Drawing these findings together, it is possible that women whose own remembered relationship with parents is less than optimal find parenting and care-giving an infant highly emotionally arousing and complicated, and are both pre-disposed to mood disturbance, and less likely to foster a warm, satisfying and intense attachment to their own infant. Maternal-infant attachment is under-investigated in studies of maternal mental health in pregnancy and the postpartum period, and the influence of social circumstances on the developing mother-infant relationship is also not understood comprehensively.

### **3.4. MATERNAL SEPARATION ANXIETY**

Separation-related emotional experiences are an established feature of attachment relationships, and are seen as particularly salient to the mother-infant dyad (Ainsworth et al., 1978; MD Ainsworth & Wittig, 1969; Bowlby, 1969, 1973). An aspect of the developing mother-infant relationship, and potentially interacting with women's well-being, are women's feelings and beliefs about frequent separation from her infant, such as that required by participation in employment.

Broadly, the psychological and emotional arousal experienced during separation from an attachment figure, termed "separation anxiety", refers to the feelings of concern, alarm or anxiety elicited when there is a real or threatened period of absence from an attachment figure (Ainsworth & Wittig, 1969; Benedek, 1970a; Bowlby, 1973). If separation anxiety is a salient feature of all attachment relationships, then it is plausible that women experience emotional sequelae when faced with separation from their infants, and this is a potential contributing factor to their psychological well-being.

Theorising about the maternal experience of separation as a psychological construct was underpinned by both psychoanalytic and attachment theories. Bowlby describes proximity-seeking and the maintenance of closeness between a mother and her infant as a mutual endeavour, and a dynamic process, whereby the infant seeks proximity, optimally to a secure, reliable base, and the mother continually balances her need for closeness and separation with her concern about the effects of separation on the child (Bowlby, 1969; Hock, DeMeis, & McBride, 1988). Benedek (1970a) described the same construct from a psychoanalytic viewpoint, suggesting that separation anxiety is born out of individuals' experiences and recollections of receiving care in early childhood, and therefore governed by intra-psychic forces that determine separation concerns throughout life. She argues that early relationships shape the way in which closeness, dependence, separation and concern about loss within close relationships are perceived, forming an aspect of adult personality.

In 1989, Hock and colleagues identified "Maternal Separation Anxiety" (Hock, McBride, & Gnezda, 1989), a construct identifying the experience of separation anxiety specifically from the maternal perspective. Several of Hock's previous longitudinal studies had identified a unique, maternal attribute, assessed by interview, which was distinct from mothering behaviours such as responsiveness to infant behaviour or sensitivity to infant cues. Hock found that mothers reported feelings, worries and concerns about separation, and suggested that these were an unexplored dimension of mothers' personality and emotional state, not previously captured in studies that focussed on the quality of their mothering (Hock, 1984).

Subsequently, Hock and colleagues developed the "Maternal Separation Anxiety Scale" (Hock et al., 1989) to quantify the effects of mother-infant separation on maternal anxiety, particularly in the context of employment after childbirth when regular, frequent separations are commonly required. Maternal separation anxiety is defined as "an unpleasant emotional state that reflects concern and apprehension about leaving the child" for short-term separations, and may be associated with feelings of sadness, guilt, or worry (Hock, 1984; Hock et al., 1989). Hock highlighted the vital importance of identifying and assessing this previously under-investigated

aspect of mother-infant attachment relationships, given the likely relevance of separation anxiety to mothers' psychological functioning and mental health, and to the emotional development and care-giving they provide to their infants. Research has sought to characterise this construct, and its psychosocial correlates, as assessed by the Maternal Separation Anxiety Scale (see Table 3.3).

**Table 3.3 Studies investigating correlates of maternal separation anxiety using the Maternal Separation Anxiety Scale (MSAS)**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(DeMeis, Hock, & McBride, 1986)  USA	62 nulliparous women, highly educated, married, selected subsample from larger population study	Prospective design. How does employment preference influence MSA in sample of older, well-educated women at 8 and 13.5 months?	MSAS <sup>1</sup> CSQ <sup>2</sup>	<ul style="list-style-type: none"> <li>• Comparisons of employment-preference and women preferring full-time infant care found that employment-preference women had less MSA at 8 and 13.5 months postpartum (18.9 versus 20.5, <math>p &lt; 0.05</math>).</li> <li>• No between group differences in early postpartum.</li> </ul>
(S McBride & Belsky, 1988)  USA	63 mother-infant pairs, part of ongoing longitudinal population study.	Prospective study investigating correlates, character and determinants of MSA at 3 and 9 months after birth	MSAS <sup>1</sup> ICQ <sup>3</sup>	<ul style="list-style-type: none"> <li>• MSAS stable from 3 to 9 months for non-employed mothers (21.4 vs 21.7, NS), declined for employed mothers (21.1 vs 19.6, <math>p &lt; 0.05</math>).</li> <li>• Higher separation anxiety determined by: lower educational attainment, more fussy/difficult infant, and no intention paid employment after birth (<math>R^2 = 0.69</math>, <math>p &lt; 0.001</math>).</li> </ul>
(M. Clark, 1988)  UK	44 professional women, 22 employed, 22 not employed with 0-6 year old children. Sampling and recruitment not described	Cross sectional study, exploring relationship career orientation and mothering for employed and non-employed mothers	MSAS <sup>1</sup> MAS <sup>4</sup>	<ul style="list-style-type: none"> <li>• Employed women less separation concerns than non-employed women (18.7 vs 24.9, <math>p = 0.02</math>).</li> <li>• Employed women's high career orientation correlated with less separation anxiety (<math>r = -0.64</math>, <math>P &lt; 0.01</math>).</li> </ul>
(SL McBride, 1990)  USA	49 women with 2-3 year old children recruited through day-	Cross-sectional study of relationship between employment	MSAS <sup>1</sup>	<ul style="list-style-type: none"> <li>• Correlation between fewer employment hours per week and higher MSAS (<math>-0.34</math>, <math>p &lt; 0.01</math>).</li> <li>• later employment resumption in first postpartum year trend to</li> </ul>

	care centres. Married, educated, employed sample.	characteristics and MSA.		higher MSAS, approaching significance ( $r=0.22$ , $p<0.10$ ).
(Hock & DeMeis, 1990) USA	209 nulliparous mothers recruited in three major maternity hospitals	Cross sectional comparison of separation anxiety/depressive symptoms according to employment preference and status in mothers of one year old infants.	MSAS <sup>1</sup> BDI <sup>5</sup>	<ul style="list-style-type: none"> <li>• Non-employed women (by preference) had higher MSA (21.4) than employed women employed by preference (17.8), <math>p=0.001</math>.</li> <li>• Women who preferred employment but were not employed had higher depressive symptoms than non-employed women fulfilling preference for primary infant care (4.7 vs 2.4, <math>p&lt;0.05</math>).</li> </ul>
(Hock & Schirtzinger, 1992a) USA	87 women having first baby, follow-up of above sample, included those who remained in study for 6 years (41% of initial sample)	Prospective study of sources of variation in MSA at 6 years postpartum, data also collected at 8 months and 3.5 years postpartum	MSAS <sup>1</sup> CES-D <sup>6</sup>	<ul style="list-style-type: none"> <li>• MSA subscale assessing general msa declined over 6 years</li> <li>• MSA significantly associated with depressive symptoms</li> <li>• High maternal depression and anxiety symptoms, and traditional ideals about women's role at 6 years contributed to higher MSA scores at 6 years.</li> </ul>
(Hock, Schirtzinger, & Lutz, 1992b) USA	84 married women with first baby recruited in maternity hospitals	Cross-sectional study. Explore relationship MSA, Adult Attachment Style and depressive symptoms 6 years after birth.	MSAS <sup>1</sup> CES-D <sup>6</sup> MCLI <sup>7</sup> Unpublished assessment of attachment style	<ul style="list-style-type: none"> <li>• Regression analysis found higher MSA made highest independent contribution to more depressive symptoms (<math>\beta = 0.92</math>) followed by worse remembered relationship with own parents (<math>\beta = 0.27</math>), and lower marital satisfaction (<math>\beta = -0.16</math>), <math>R^2 = 0.36</math>, <math>p=0.0001</math>.</li> </ul>
(Pattison & Moyse, 1995) United Kingdom	Random sample selected from health visitor lists, children less than 7 years, 29 employed and 29 non-employed women	Cross-sectional study. Could differences in interest and suitability in occupational role predict differences in MSA?	MSAS <sup>1</sup> OII <sup>8</sup>	<ul style="list-style-type: none"> <li>• Suitability to caring role was associated with higher separation anxiety than women who were classified as more occupational interest in paid work on occupational inventory (<math>p&lt;0.05</math>).</li> </ul>
(Hock & Lutz, 1998) USA	133 women, recruited in hospitals and antenatal	Prospective study from pregnancy to 2 years after birth, assessing	MSAS <sup>1</sup> DEQ <sup>9</sup>	<ul style="list-style-type: none"> <li>• MSAS declined from pregnancy to 18 months (22.5 to 19.9, <math>p&lt;0.0001</math>).</li> <li>• maternal high dependency</li> </ul>

	classes	contribution of personality attributes (dependency, self-criticism) to differences in MSA		predicted MSA ( $\beta = 0.33$ ), as did more self-criticism ( $\beta=0.24$ ), and more traditionally-held sex-role beliefs ( $\beta=0.30$ ), $R^2 = 0.47$ , $p<0.001$ at two years after birth.
(Wille, 1998) USA	70 two-parent families with infants recruited through birth notices in newspaper	Longitudinal study from 6-18 months after birth. Explore relationship between infant-to-parent attachment, employment characteristics and MSA	MSAS <sup>1</sup> Unpublished self-report assessment of infant-to-parent attachment	<ul style="list-style-type: none"> <li>• Lower MSAS predicted by preference for employment (<math>\beta=0.35</math>), and longer hours of employment participation (<math>\beta=-0.33</math>) than women scoring higher on MSAS at 18 months, <math>p&lt;0.05</math>.</li> <li>• No relationship MSA and infant-parent attachment.</li> </ul>
(Scher, HersHKovitz, & Harel, 1998) Israel	58 mother-infant pairs recruited in postnatal hospital stay	Prospective study 3-12 months Explore relationship between mother's own internal working model and MSA	MSAS <sup>1</sup> IRQ <sup>10</sup>	<ul style="list-style-type: none"> <li>• At 12 months, mothers with a secure Attachment Style report less separation concern than pre-occupied mothers (<math>F=6.19</math>, <math>P&lt;0.001</math>).</li> </ul>
(Mayseless & Scher, 2000) Israel	97 women recruited in maternity hospitals	Prospective study. Does attachment style, represented in spousal relationship at 3 months determine MSA at 9 months? Does infant temperament (3 mos) determine MSA at 9 mos?	MSAS <sup>1</sup> ICQ <sup>3</sup> ACQ <sup>11</sup>	<ul style="list-style-type: none"> <li>• Higher MSA at 9 months associated with higher maternal fear of dependency (<math>r=0.47</math>, <math>p&lt;0.001</math>) and higher fear of closeness (<math>r=0.25</math>, <math>p&lt;0.05</math>), indicative of avoidant attachment style.</li> </ul>
(Lutz & Hock, 2001) USA	49 nulliparous women, partnered, recruited from antenatal classes, obstetric clinics, health centres.	Prospective study, pregnancy to 2 postnatal months. Do adult representations of attachment relationships contribute to MSA?	MSAS <sup>1</sup> AAI <sup>12</sup>	<ul style="list-style-type: none"> <li>• Mothers with insecure attachment representations reported higher MSA (26.5) than women with secure representations (22.9) at two months after birth (<math>P&lt;0.05</math>).</li> </ul>

(Hsu, 2004) USA	53 nulliparous women, well-educated, married, recruited from antenatal classes.	Prospective investigation of antecedents of msa from pregnancy to 6 months after birth, including maternal and infant factors	MSAS <sup>1</sup> ICQ <sup>3</sup> BDI <sup>5</sup> STAI <sup>13</sup>	<ul style="list-style-type: none"> <li>• MSA all three scales stable 1-6 months (<math>r = 0.70, 0.71, 0.84</math> for each subscale, <math>p &lt; 0.001</math>).</li> <li>• Lower maternal separation anxiety associated with lower trait anxiety (<math>r = -0.44, p &lt; 0.05</math>), better marital quality (<math>r = -0.42, p &lt; 0.05</math>) and more satisfaction with social support (<math>r = -0.35, p &lt; 0.05</math>).</li> </ul>
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1. Maternal Separation Anxiety Scale (Hock et al., 1989), higher scores indicate higher separation anxiety

2. Career Salience Questionnaire (Greenhaus, 1971)

3. Infant Characteristics Questionnaire (Bates et al., 1979)

4. Maternal Attitude Scale (Cohler, Weiss, & Grunebaum, 1970)

5. Beck Depression Inventory (A. Beck & Beck, 1972)

6. Centre for Epidemiological Studies – Depression (Radloff, 1977)

7. Marital Comparison Level Index (Sabatelli, 1984)

8. Occupational Interest Inventory (Holdsworth & Cramp, 1982)

9. Depressive Experiences Questionnaire (Blatt, D'Afflitti, & Quinlan, 1976)

10. Interpersonal Relations Questionnaire (Maysseless, 1995)

11. Attachment Concerns Questionnaire (Hazan & Shaver, 1987)

12. Adult Attachment Interview (George, Kaplan, & Main, 1984; Main & Goldwyn, 1998)

13. State-Trait Anxiety Inventory (Spielberger et al., 1970)

### 3.4.1 Correlates of maternal separation anxiety

Several studies have investigated the relationship amongst maternal separation anxiety, employment participation and job characteristics (see Table 3.3). Four studies have compared mothers of infants who stated that they preferred employment with those who reported a preference for primary infant care-provision to their infant (DeMeis et al., 1986; Hock & DeMeis, 1990; Hsu, 2004; Wille, 1998). These studies found that maternal separation anxiety is consistently lower in women who report a preference for postnatal employment, independent of employment participation at the time the data were collected. Similarly, women in a prospective study who reported at three months postpartum that they intended to participate in employment in the first year after birth reported less separation anxiety than those not intending to resume employment in the first postpartum year (McBride & Belsky, 1988). A single study reported a correlation between women's occupational interest, on a standardised inventory of career salience, for employment rather than infant care, to lower maternal separation anxiety (Pattison & Moyse, 1995). Two studies have found an inverse relationship between higher MSAS scores in the first year after birth and fewer employment hours performed each week (McBride, 1990; Wille, 1998). In summary, these studies have shown that women who retain a preference for some workforce

participation after birth consistently report less anxiety about the effect of separation on their own and their infant's well-being.

Two interpretations for these results have been offered by investigators. Some have suggested that women who prefer to remain predominantly out of the workforce during their child's infancy are expressing a strong belief that effective mothering requires exclusive care-giving, possibly influenced by the strength of their emotional attachment to their infant, and belief in the primacy of the maternal role (Hock & Lutz, 1998; McBride & Belsky, 1988). This belief, along with concerns about their child's well-being when with alternate carers, leads them to prolong their time out of the workforce. In this interpretation, employed women are described as having a maternal identity that includes some paid employment, so report lower levels of concern, anxiety and worry about their infants' well-being when they resume employment. Alternatively, it may be that employed women become desensitised to their own emotional reactions over repeated exposure to regular separations and become reassured that their infant can adapt to other care-givers, so separation anxiety diminishes (DeMeis et al., 1986). Whether experiencing lower levels of concern about separation leads women to resume employment rapidly, or whether repeated, brief separations for employment in turn reassure women that separation is manageable is unable to be confirmed from the current evidence.

Prospective studies have examined women's scores on the MSAS for an effect of time, hypothesising that as the baby grows older, women's concern about separation will decrease. However, two studies (see Table 3.3) have found no change in MSAS scores, either between 0-6 months postpartum (Hsu, 2004) or 6-18 months postpartum (Wille, 1998). McBride and Belsky's (1988) study of 63 mother-infant pairs found that for employed mothers only, maternal separation anxiety decreased between three and 9 months postpartum, suggesting an effect of desensitisation to separation over repeated experiences. The authors concluded that employed women become practiced at separation from their infant after repeated, frequent episodes, and this mitigates their initial concern and sadness. Conversely, Hock and Lutz (1998) found a decrease in MSAS scores for their whole sample of employed and non-employed women from



pregnancy to 18 months after birth. Whilst the observed decreases in MSAS scores over time reached statistical significance in the latter study, the investigators note that the actual change in mean scores between pregnancy and 18 months after birth was small – from 22 to 20 on a 35-item scale. The course of maternal separation anxiety in employed and non-employed women is not been well-understood.

Research about the influence of infant behaviour and temperament on maternal separation concerns have hypothesised that mothers of more “difficult” infants will be more concerned about their infants’ ability to adapt to new carers, and thus report higher MSAS scores than mothers who perceive their infants as more manageable. Maysless and Scher (2000) (see Table 3.3) prospectively investigated the relationship between maternal separation anxiety at 9 months and infant behaviour assessed on a standardised measure, the Infant Characteristics Questionnaire (Bates et al., 1979) at 3 months in a sample of 97 Israeli women. They found that women reporting more “difficult” infants at three months did indeed have higher concerns about separation at nine months than women whose infants were more predictable and manageable. Maysless and Scher conclude that mothers’ increased concern about separation when mothering an infant they perceive as more demanding is both sensitive and appropriate. Two further prospective studies, using the same standardised measure of unsettled infant behaviour, including prolonged crying and fussing in response to daily activities, supported this finding (Hsu, 2004; McBride & Belsky, 1988).

With the available evidence, it is difficult to clarify whether separation anxiety reflects the nature of women’s attachment to their infant, including her fixed beliefs about the primacy of exclusive maternal care, or whether it is modified over repeated separation experiences. Similar to the theories about separation anxiety of both attachment and psychoanalytic theorists, Hock et al. (1989) have noted that women’s early experiences of care and remembered relationship with parents may govern the extent to which women feel the need to keep their infant close when they become mothers. However, somewhat distinct from Benedek and Bowlby, Hock et al. (1988; 1989) argue that individual differences in maternal separation anxiety, as well as

being an aspect of personality, are also attributable to social circumstances that influence the degree to which regular separation, maternal employment and non-maternal care for infants are viewed as appropriate. There is some support for this within the available literature, as lower maternal separation anxiety is related, for example to easier infant behaviour, maternal preferences for employment and to postnatal employment participation. The evidence about the relationship between maternal attachment style and separation anxiety provides further clarification.

### **3.4.2 Maternal separation anxiety and maternal attachment style**

There is theoretical consensus amongst researchers that there is an optimal level of healthy maternal separation anxiety (Benedek, 1970a; Hock & Schirtzinger, 1992a; Scher et al., 1998). According to Bowlby (1973), sensitive attachment figures provide a balance between closeness and separation. Optimal maternal functioning and sensitive care-giving allow the infant opportunities for separation, individuation and exploration from a consistently secure, trusted base.

Hock and Schirtzinger (1992a) argue that ideally, mothers who feel secure in their developing loving relationship with their infant are able to combine their own and their infant's need for affection, closeness and proximity, while being mindful of, and sensitive to, the necessity of providing opportunity for separation for themselves, and for age-appropriate exploration and individuation of the infant. It follows therefore that the optimal, "healthy" range of maternal separation anxiety would be observed in women whose attachment style was secure, confident and warm. Conversely, too much or too little separation anxiety would be reported by women whose own attachment style was anxious or ambivalent. Several of the studies summarised in Table 3.3 sought to investigate the relationship between maternal separation anxiety and women's attachment style.

#### **3.4.2.1 Heightened maternal separation anxiety**

Lutz and Hock's (2001) study of 49 primiparous women found that those whose own attachment style was classified as "secure" had significantly lower maternal separation anxiety at two months postpartum than women whose styles were

classified as “insecure” on a standardised interview assessment of adult attachment representations. “Secure” women portrayed their own attachment experiences as formative and valuable, and as a balance of positive and negative factors. “Insecure” women were either preoccupied about their own experiences of care, or were overly dismissive, minimising the effect of their past experiences. The authors concluded that heightened separation concerns observed in women classified as “insecurely attached” stemmed from their inability to regulate the balance between closeness and separation, and from their own need to over-compensate for the absence of security, warmth and love experienced in their own upbringing.

Two Israeli studies have reported a similar relationship between maternal separation anxiety and mothers’ own attachment style (see Table 3.3). Mayesless and Scher (2000) found that mothers whose attachment style was characterised by a high fear of becoming dependent reported higher levels of separation anxiety than women who did not report the same fear of dependence. Fear of emotional closeness and suspicion of becoming dependent within interpersonal relationships is suggestive of an avoidant Adult Attachment Style, characterised by emotional distance and mistrust of others. The authors concluded that an avoidant attachment style may also be expressed in a heightened mistrust of others’ ability to care adequately for their infant in their absence, which would explain the higher separation anxiety reported by women fearing emotional closeness.

A second prospective study of 58 mother-infant pairs classified women’s own internal working model as either “secure” - attentive, caring, loving - or “pre-occupied” - rejecting, controlling - based on the Interpersonal Relations Questionnaire (Mayseless, 1995), a standardised measure of representations of women’s childhood relationships with their own mother (Scher et al., 1998). At three months, all respondents had similar levels of maternal separation anxiety. Later in the postpartum, at twelve months, women classified as “preoccupied” had significantly higher maternal separation anxiety than “secure” mothers. The separation concerns of women whose attachment style was described as secure had decreased over the first postpartum year, and the authors conclude that this is characteristic of mothers who are able to

differentiate between their own anxiety and the child's need for increasing autonomy. "Preoccupied" mothers remained anxious, more threatened by developing autonomy in their infants, and were thus insensitive to the infants' needs for separation. These women retained ambivalent, unresolved recollections of their own childhoods, and were less well equipped to negotiate separation.

It is notable that in all three studies, women whose attachment style was classified as warm, attentive and responsive were observed to have moderate separation anxiety, rather than either comparatively low or high separation anxiety. Women with a secure attachment style expressed some sadness and worry about leaving their infant, and were sensitive to how their baby would adapt to an alternative care-giver. It is plausible then that women who are able to understand that the negotiation of competing needs is an inherent part of close relationships are better able to pursue an independent income, and their own interests outside of the mother-infant relationship, without fearing that something within the relationship will be irreparably damaged (Lutz & Hock, 2001; Mayseless & Scher, 2000).

Conversely, the evidence from these studies suggests that heightened maternal separation anxiety is characteristic of a dysfunctional mother-infant relationship, displaying a constellation of unhealthy personality attributes including fear, mistrust and excessive over-compensation for early, inadequate attachment relationships (Hock & Schirtzinger, 1992a). High separation anxiety indicates an inability to regulate the balance of closeness and separation within the mother-infant relationship and this in turn affects the mothers' capacity to pursue any activity outside of mothering. Hock et al. (1992a), like Benedek (1970a) argue that this also has an effect on the child, particularly as children develop age-appropriate needs for increasing autonomy. Excessive separation anxiety is likely to be accompanied by an intrusive, over-protective, hyper-vigilant style, that is insensitive to the needs of the infant.

#### **3.4.2.2 Low separation anxiety**

The characteristics and correlates of low separation anxiety have been less well characterised in the literature. Benedek (1970a) suggests that because separation anxiety is an aspect of attachment relationships, too little concern about separation

may be an indicator of inappropriately low emotional closeness, apathy or indifference to the infant's well-being, a form of emotional abandonment.

In their sample of 87 women followed for 6 years from giving birth to their first child, Hock and Schirtzinger (1992a) (see Table 3.3) found that while high separation anxiety was associated with poorer maternal psychological functioning, including increased depression and anxiety, lower separation scores in this sample appeared to be associated with no observable psychological symptoms. However, the authors note that for the women who remained in the study for the 6 years, the lowest possible scores on the MSAS were not recorded. Less than half (41%) of the original study sample provided data at 6 year follow-up, and it may be that women with poorer psychological functioning, including lower separation anxiety did not remain in the study. Hock and Schirtzinger conclude that further empirical study of women reporting low separation anxiety is needed, as it is likely that these women are at risk of being detached and under-involved with their children, providing sub-optimal emotional nurturance and care.

This evidence indicates that there is likely to be an optimal middle range of appropriate maternal anxiety about separation from her infant, although the score range of this on the MSAS has not been validated. The available evidence about maternal separation anxiety suggests that as well as being influenced by external factors, women's attachment style governs their capacity to regulate closeness and separation appropriately and to sensitively provide their infants with comfort, closeness and opportunities for independence.

### **3.4.3 Maternal separation anxiety and maternal well-being**

As maternal separation anxiety is a psychological construct that reflects women's thoughts, feelings and worry about separation from their infant, it is plausible that either relatively high or low maternal separation anxiety will be reflected in worse maternal psychological functioning, including an increase in symptoms of depression, and general trait anxiety not specific to thoughts about separation. Given the relationship between anxious or avoidant attachment styles and depressive symptoms in adults (see section 3.3.3), it is also plausible that attachment style influences

maternal separation anxiety, and this in turn has psychological sequelae. Several studies have examined the relationship between maternal separation anxiety, and depression and trait anxiety (see Table 3.3).

Hock and colleagues' (1992b) study of mothers of 6 year old first-born children, found a strong, independent association between higher maternal separation anxiety and more depressive symptoms on a standardised measure of maternal mood. The authors conclude that high scores on the MSAS identify women who are exceedingly fearful or hyper-vigilant about their children, and that this in turn confirms that difficulties about separation are an indicator of an anxious attachment style. The effect could have also been reversed, however, so that women who are depressed and anxious became more concerned about separation from their children. The direction of the effect has not been well understood.

A recent study of 53 primiparous women found no such relationship between maternal separation anxiety in the first 6 months after birth and depressive symptoms assessed on a standardised instrument (Hsu, 2004). This same study found a modest correlation between women's generalised trait anxiety assessed at one month postpartum, and maternal separation anxiety. Higher maternal trait anxiety was positively associated with higher maternal separation anxiety at one month, suggesting that women who are more anxious in general are more likely to perceive thoughts about separation as anxiety-provoking.

Existing evidence suggests that maternal separation anxiety is a psychological construct influenced by mothers' attachment style, but also putatively governed by a range of social factors including employment preference and salience, beliefs about mothering, and infant factors. It is generally accepted that there is an optimal level of separation anxiety commensurate with an affectionate, attentive, attachment relationship, but this mid-range has yet to be delineated. Furthermore, the relationship between maternal separation anxiety and psychological well-being has been sparsely investigated, yet it follows that if there is a normative range of appropriate anxiety, too much or too little concern about separation may have adverse maternal psychological sequelae, as well as influence maternal care-giving to her infant.

Few studies have comprehensively conceptualised the relationship between attachment and separation anxiety in the postpartum, particularly in the context of women's employment following birth. Existing knowledge about maternal separation anxiety is based on studies which, although prospective in design, have sampled almost exclusively from homogenous groups of employed, partnered women of high socio-economic status. The findings about the correlates and aetiology of maternal separation anxiety have yet to be replicated in a more diverse sample of childbearing women.





# **CHAPTER 4 EMPLOYMENT AND MATERNAL WELL-BEING**

For most contemporary Australian women, childbearing occurs within the context of participation in employment. During pregnancy, employed women must make decisions about a period of leave following the birth, negotiate for access to maternity leave when available, and make plans for employment resumption, including securing alternative infant care. Following birth, women have to negotiate their timing for return to the paid workforce, advocate for favourable job conditions, and accommodate regular separation from their infant, possibly for the first time. These decisions occur within a policy setting that dictates the availability of maternity leave and of paid, non-parental childcare. Similarly, employment conditions and workplace culture, personal financial circumstances, increased domestic workload and the developing mother infant relationship shape the context in which women make decisions about postnatal employment participation. Given that a range of social and structural factors contribute to maternal well-being, and that employment factors at other stages of the life are associated with mental health outcomes (Barnett, 2004; Barnett & Hyde, 2001), it is likely that employment in pregnancy and following birth contributes to psychological well-being.

## **4.1 EMPLOYMENT AND MOTHERS' MENTAL HEALTH**

Scholarly and research interest in the relationship between women's employment and mental health throughout adulthood has been generated relatively recently. The increased participation of women in the paid workforce, beginning at the advent of second-wave feminism in the late 1960's, has been described as an indicator of, and a catalyst for, major social change (Barnett, 2004; Barnett & Hyde, 2001), and lent urgency to the necessity of understanding the significance and implications of employment for women, and mothers (Bryson & Warner-Smith, 1998). Women's

participation in employment in unprecedented numbers over the past forty years, particularly mothers of pre-school age children was initially, according to the cultural and theoretical climate at the time this shift occurred, presumed to have wide-ranging implications. These included adverse effects on children's care and development, for spouse's mental health, for the marital relationship, for the daily functioning of the family, and for women's well-being (Menaghan & Parcel, 1990; Scarr, Phillips, & McCartney, 1989; Voydanoff, 1989). Accordingly, research attention was directed to describing the effect of women's employment on themselves, on their partners and on their families (Barnett & Hyde, 2001; Gilbert & Rader, 2001). Extensive research has been conducted examining the effect of performing multiple "roles" on women's physical and mental health (Hochschild, 1973; Voydanoff, 1989). This conceptualisation has been highly influential in research examining the relationship between women's mental health and participation in the paid workforce, particularly in combination with mothering (Arber, 1991).

#### **4.1.1 Development of the concept of women's multiple roles**

Much of the sociological and psychological research investigating the relationship between employment, mental health and mothering in the second half of the twentieth century was informed by the theory of social roles. Social role theory was developed in the 1950's during a time of rigid gender expectations about women's 'natural' role and entrenched prescriptive norms of the gendered division of labour. Freudian and psychoanalytic notions of the biologically determined fulfilment inherent in mothering also provided the theoretical underpinning in which social role theory was developed (Barnett & Hyde, 2001; Hochschild, 1973).

Parsons (1949, 1955), was a sociologist interested in the functioning of the nuclear family unit within broader social kinship and organisational structures. Observing demographic patterns in the post-war period including increasing birth rates, and lower rates of divorce, Parsons (1955) theorised that role delineation between the sexes was the way in which families resolved the tension between the functional efficiency driving the occupational world and the emotional, diffuse functioning of the family (Parsons, 1949, p. 191). In social role theory, biologically determined sex

differences act as a “master status, channelling one into particular roles” (Gove & Tudor, 1973, p. 814). Thus, men were suited to mediating the relations between the family and the public domain, predominantly through acting as the sole income earner. Women were naturally concerned with, and therefore specialised in, the private domain of the family and the household, and this protected family solidarity as women were not in direct competition with their partners for the occupational role, or their employment (Goode, 1964, p. 71; Parsons, 1949, p. 195).

While men’s participation in employment was viewed as necessary to the structure and function of the family, employment participation by women was considered unnatural, exceptional, and an added burden to women’s existing roles of wife and mother (Froberg, Gjerdingen, & Preston, 1986). Parsons and Bales (1955, p. 14) describe women’s role in the paid workforce as “qualitatively different [to that of men] ...not of a status which competes with that of her husband”. The gendered division of paid and unpaid labour was assumed to be natural within social role theory (Hochschild, 1973).

Two alternative hypotheses emerged from role theory, which informed much research about employed mothers’ mental health: the “scarcity” hypothesis, and the “enhancement” hypothesis. The scarcity hypothesis, proposed by Goode (1960), was not empirically based, but rather formed by his theorising about individual organisational behaviour within the paid labour force. Goode argued that human energy was finite, yet the responsibilities and expectations of any job or role were infinite. Attention expended in one sphere produced deficit in another. Compromises and negotiations between role obligations were the means through which individuals sought to overcome this tension between the scarcity of their own energy, and the demands of their work. According to Goode, “role strain” is the experience of difficulty in fulfilling role obligations. Role strain develops through two pathways: role overload when there is insufficient time available to complete all required tasks, and role conflict, when compromises are made in one role to fulfil demands in another. Within the scarcity hypothesis, psychological distress and depression are understood as the inevitable product of inability to fulfil competing roles, and of the

compromises necessary to manage competing tasks. So for women, adding “non-traditional” roles to their existing responsibilities as spouse and mother, such as employment, was expected to have adverse psychological sequelae (Arber, 1991; Barnett & Hyde, 2001; Froberg et al., 1986).

A revision of this hypothesis, the “enhancement hypothesis” was provided by Marks (1977) who argued that human energy is potentially renewable and potentially enhanced by a range of interactions and social contexts. Sieber (1974) too noted that an accumulation of roles enhances opportunities for social support, social interaction, privilege, status, and capacities for skill-building that may have an overall net benefit on health and well-being. The role enhancement hypothesis proposes that participation in multiple roles, although demanding on time, accumulates benefits, and that advantages attached to one role may mediate disadvantages present in another.

These two competing hypotheses underpinned much research investigating the relationship of employment to women’s well-being. Studies were designed to test the effects on women’s physical and mental health of women’s multiple roles, namely that of spouse, parent, homemaker and labour force participant. Few studies differentiated between mothers of infants’ and those of older children. Research in the 1970’s and 1980’s, predominantly conducted with white, middle class American samples, investigated whether the total combination of women’s workload in the home, in the paid workforce and as a mother would lead to role strain and increased psychological symptoms, or conversely, be protective of mental health.

#### **4.1.1.1 Effect of multiple roles on women’s mental health**

A summary of early studies, predominantly in the 1970’s and 1980’s, investigating the mental health effects of women’s combined roles, is presented in Table 4.1. These studies used either standardised or non-standardised assessments of maternal psychological well-being.

**Table 4.1 Studies of the mental health effects of women's multiple roles**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Powell & Reznikoff, 1976)  USA	290 women, recruited via college alumnae associations, most professionally occupied, 10 years after graduation to coincide with childbearing	Survey, comparing role conflict and psychological symptoms in women who had traditional versus achievement orientations	22-item study specific assessment of psychological symptoms	<ul style="list-style-type: none"> <li>• No differences between women employed and women in unpaid labour</li> <li>• Women in lower status occupations more symptoms than managers / professionals</li> </ul>
(Gove & Geerken, 1977)  USA	400 women, employed and not employed, randomly sampled from census collection districts, married, aged 18-60, employed husband	Survey to investigate whether employed women had better mental health than non-employed women	Study specific measures of psychological symptoms	<ul style="list-style-type: none"> <li>• Non-employed mothers had worst mental health, more isolation, less time to self. Employed mothers better mental health</li> <li>• Number of symptoms inversely related to age of youngest child.</li> <li>• No support for overload</li> </ul>
(Fugate-Woods, 1985)  USA	144 married women aged 20-40, randomly sampled from single family health clinic	Cross-sectional examination of effect of number of multiple roles on mental health	CMI-MR <sup>1</sup>	<ul style="list-style-type: none"> <li>• No differences number of roles and mental health, conclude that multiple roles are complementary not deleterious</li> </ul>
(Barnett & Baruch, 1985)  USA	238 women, aged 35-55, varied employment, marital and mothering status, randomly sampled from voting lists	Cross-sectional investigation of whether number and quality roles predict anxiety, role conflict and role overload	SCL-90-R Study specific assessment of quality of each role	<ul style="list-style-type: none"> <li>• No differences in anxiety by employment status</li> <li>• Quality of roles independent contribution to anxiety when age, income, educational attainment controlled for</li> <li>• For non-employed women, there was a significant relationship role overload/ conflict and anxiety</li> <li>• Support for enhancement hypotheses</li> </ul>
(Aneshensel, 1986)  USA	Randomly selected population sample of 1003 adults, (490 women).	Prospectively investigate antecedents of depression in adults, 2 interviews 12 months between interviews	CES-D <sup>2</sup>	<ul style="list-style-type: none"> <li>• No differences in women by employment status</li> <li>• More demanding, unrewarding or depersonalising job associated with worse</li> </ul>

				<p>mood</p> <ul style="list-style-type: none"> <li>• No differences in these effects by parental status</li> </ul>
<p>(Schwartzberg &amp; Scher, 1989)</p> <p>USA</p>	<p>94 employed and 68 non-employed mothers, surveys sent to all mothers in 3 diverse urban primary schools, 70% response rate</p>	<p>Survey, investigated specific sources of stress in family, and effect on employed and non-employed women</p>	<p>CES-D<sup>2</sup></p> <p>Study specific measure of family stress</p>	<ul style="list-style-type: none"> <li>• no differences family stress or depressive symptoms by employment status</li> <li>• Non-employed women more vulnerable to family stress including no intellectual challenge and unsupportive partner</li> <li>• no support for role overload</li> </ul>
<p>(Wethington &amp; Kessler, 1989)</p> <p>USA</p>	<p>745 married women, households randomly selected in one US metro. area, telephone survey</p>	<p>Two wave repeat survey, 12 months apart, investigating role of transition to parenthood and workforce entry / exit on mental health</p>	<p>SCL-90-R<sup>3</sup></p>	<ul style="list-style-type: none"> <li>• No linear relationship parenting and increased distress</li> <li>• Workforce entry / exit did not lead to increased distress</li> </ul>
<p>(Waldron &amp; Jacobs, 1989)</p> <p>USA</p>	<p>Probability sample of &gt;3000 women, nationally representative sample, aged 40-54</p>	<p>Longitudinal study of health effects of women occupying 3 roles – spouse, parent and labour force participant</p>	<p>Checklist of physical symptoms, depression and anxiety</p>	<ul style="list-style-type: none"> <li>• Multiple role involvement reported fewer symptoms, least in women who were occupied in all three roles.</li> </ul>
<p>(Tiedje et al., 1990)</p> <p>USA</p>	<p>108 professional women, employed full-time married with children under 6 years, convenience sample</p>	<p>Cross-sectional investigation of perceptions and mental health effects of role strain and role enhancement</p>	<p>SCL-90-R<sup>3</sup></p> <p>PAS<sup>4</sup></p>	<ul style="list-style-type: none"> <li>• Weak negative correlation between role strain and enhancement perceptions, suggesting not mutually exclusive, independent dimensions, not opposing</li> <li>• Low conflict between roles, high enhancement assoc. with least depression</li> </ul>
<p>(Barnett &amp; Marshall, 1992a)</p> <p>USA</p>	<p>402 women employed as either nurses, or social workers, randomly sampled from professional registries and invited to participate</p>	<p>Cross-sectional investigation of the main and interacting effects of employment on mental health of women, comparing mothers and those without children</p>	<p>SCL-90-R<sup>3</sup></p>	<ul style="list-style-type: none"> <li>• No direct effect of parent status on psychological distress when age, ethnicity, education and income controlled for.</li> <li>• quality of mothering and employment predicted variation in symptoms</li> </ul>

Barnett, 1992b #148 } USA	Longitudinal follow-up of above sample	Prospective analysis of effects of job quality changes over time on psychological well-being, interviewed annually for 3 interviews	Study specific assessment of job quality SCL-90-R <sup>3</sup>	<ul style="list-style-type: none"> <li>• For mothers, no association between poorer job quality and more distress over time</li> <li>• more 'roles' women occupy, less vulnerable to poor job quality, mitigated by mastery, control and pleasure, identity in family life</li> </ul>
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1. Cornell Medical Index - Mood Scales (Brodmann, Erdmann, Lorge, Gershenson, & Wolff, 1952)

2. Centre for Epidemiological Studies - Depression (Radloff, 1977)

3. Symptom Checklist, revised version (Derogatis, 1977)

4. Positive Affect Scale (Bradburn, 1969)

Several of these studies compared mental health outcomes according to the number of roles women occupied, without commenting on the characteristics or quality of the roles themselves. Findings of the methodologically poor, small, cross-sectional surveys of convenience samples of women (Fugate-Woods, 1985; Powell & Reznikoff, 1976; Schwartzberg & Scher, 1989) were supported by the results of the more rigorous, larger, prospective investigations of representative samples of women, using standardised assessments of psychological symptoms (Aneshensel, 1986; Waldron & Jacobs, 1989; Wethington & Kessler, 1989). There were no differences in the mental health and well-being of mothers who were combining employment with their unpaid workload, compared with those occupied full-time in unpaid labour (Fugate-Woods, 1985; Gove & Geerken, 1977; Schwartzberg & Scher, 1989; Waldron & Jacobs, 1989).

Overall, this work provides little empirical support for the scarcity hypothesis, and this has been described by other authors in reviews (Barnett, 2004; Froberg et al., 1986; Repetti, Matthews, & Waldron, 1989; Warr & Parry, 1982). Barnett (2004, p.160) notes that popular, research and clinical perceptions of employed mothers are characterised by a "time bind", and a "juggle" accompanied by constant psychological distress that contaminates the well-being of their family. However, there is little empirical evidence to support a simple, linear relationship between employment participation and worse mental health in mothers.

There is some support however, for the role enhancement hypothesis that poses that women who participate in multiple roles benefit psychologically. In cross-sectional studies, using published psychometric measures of maternal mood, three authors have reported fewer symptoms of mood disturbance in employed mothers compared to those in full-time home duties (Barnett & Baruch, 1985; Gove & Geerken, 1977; Schwartzberg & Scher, 1989) (see Table 4.1). These results however do not confirm the direction of this observed relationship. One prospective study of a probability sample of over 3000 women was able to adjust for 'initial health' assessed at the outset of the study, using a study-specific checklist of maternal psychological symptoms. Waldron and Jacobs (1989) found that women occupying all three roles of spouse, mother and employee across the study period, reported the fewest symptoms, after adjusting for initial health, compared to those occupied in only one or two of those roles. This suggests that engagement in a variety of activities, particularly employment, provides women with opportunities for mastery, social interaction, increased self-esteem and sense of purpose that are often missing in the mundane, daily, largely invisible household workload (Barnett & Baruch, 1985; Gove & Geerken, 1977). It is also possible however that women in optimal psychological health are those most likely to pursue employment in the paid workforce.

There is also some evidence that multiple roles is associated with a "buffering", or protective effect as proposed by Marks (1977). Schwartzberg and Scher (1989) for example found that non-employed women reported more adverse conditions within the family, such as having an unsupportive partner, and feeling the absence of stimulating and challenging activity than employed women. They concluded that employed women can meet their need for intellectual challenge, stimulation and social contact in the paid workforce, an opportunity not available to non-employed women. Similarly, Barnett and Baruch (1985) reported that only for non-employed women, in their sample of 238 women, were perceptions of "juggling conflicting obligations" and everything "adding up to too much" associated with increased anxiety. The authors suggest that one plausible interpretation of this association is that the lack of inherent structure present in the unpaid workforce provides to women no legitimate way of managing their workload, leading to increased anxiety.



A small group of studies, also summarised in Table 4.1 have included assessments of the quality, experience and nature of the roles performed by women in order to explain variation in mental health outcomes not addressed in studies concerned only with role occupation, rather than role quality.

Aneshensel (1986) in a random sample of 490 women found more depressive symptoms reported in those who were employed in insecure poorly remunerated jobs, regardless of whether or not they had children. Similarly, Barnett and Baruch (1985) controlled for age, education and income, and found that less rewarding, more distressing parenting experience and the perception of high employment demands each made an independent contribution to increased anxiety symptoms.

Two studies of the same cohort of nurses and social workers randomly sampled from professional registries, found that women without children were more affected by poor role quality in their job than employed mothers. Job quality in this study was repeatedly assessed using a composite measure of potential job “rewards” – job security, skills utilised – and job “concerns” such as job insecurity and low autonomy. Mothers in this study reported no association between worsening perceived job quality and heightened distress over the 2 year study period, an association that was observed in women without children. The authors of this study accounted for the possibility that women with better mental health were more likely to be in employment by adjusting for initial assessment in psychological symptoms, and were therefore able to identify the contribution of job quality to changes in women’s well-being over the course of the study (Barnett & Marshall, 1992a; Barnett, Marshall, & Singer, 1992b).

Overall, these early studies provide some preliminary understanding of the relationship between better mental health and employment participation for mothers, possibly through the access to the status, independence and autonomy optimally provided by employment participation that is not available to women occupied predominantly in the unpaid workforce (Schwartzberg & Scher, 1989; Sieber, 1974). However, many of these studies are cross-sectional in design, so the direction of the

observed associations between better mental health and employment participation are not well elaborated by the evidence provided in these early investigations.

#### **4.1.1.2 Limitations to role-based conceptualisations**

Early studies designed to examine the mental health effects of women's multiple roles of spouse, mother and employee have provided some evidence that participation in paid employment is protective against worse mood, supportive of the "role enhancement" hypothesis (Barnett, 2004; Barnett & Baruch, 1985; Froberg et al., 1986; Fugate-Woods, 1985). Social role concepts are based on the sexist notion that employment is essential for men, yet optional or additional for women, and thus likely to lead to increased overload and role conflict when combined with women's "natural" roles of wife and mother (Arber, 1991; Barnett, 2004; Hochschild, 1973). Consistently, empirical evidence has not supported this (Menaghan & Parcel, 1990; Repetti et al., 1989; Warr & Parry, 1982). The fact that women perform a disproportionate amount of the household workload (Bittman, 2004; Fisher, 2009) is not questioned within role-based conceptualisations, and it is assumed that women will continue to undertake the major share of unpaid labour and combine it with their paid work. These studies uphold the binary division between "home" and "work", thereby devaluing and marginalising the constant, demanding work performed in the unpaid workforce, predominantly by women.

Barnett (2001) argues that role based theorising is obsolete, because it is based on outmoded concepts of gender-differentiated occupational roles. In spite of the fact women continue to perform a disproportionate amount of the unpaid domestic workload, combining this with participation in the paid workforce may provide validation, status, independent income, social support, and opportunities to experience success not afforded in the unpaid workforce, contributing to better mental health outcomes (Barnett & Hyde, 2001; Gilbert & Rader, 2001; Gove & Tudor, 1973). Whether this is as relevant to women of lower socio-economic position, employed in poorly-remunerated job, with poor conditions and few opportunities for satisfaction and support, as to women of employed in higher status occupations, is less well understood. Furthermore, few of these early studies accounted for individual

differences in how the domestic division of labour was divided, and Repetti et al. (1989) argue that this may be an important moderator of the relationship between employment and women's mental health. The inequitable distribution of unpaid work, the concentration of women in less-well remunerated, lower paid occupations, the nature of employee conditions and entitlements, and the effect of these across difference life stages, including the transition to motherhood was not conceptualised or assessed in much of this early literature (Froberg et al., 1986).

#### 4.1.2 Contemporary studies of employment and mothers' mental health

Several large-scale recent Australian and international cross-sectional surveys have attempted to investigate the relationship between employment and mothers' well-being across the life-course. Few of these have focussed specifically on mothers in the postpartum period. Table 4.2 presents a summary of studies, all but one using standardised assessments of women's mental health, sampling from large, population-based cohorts.

**Table 4.2 Recent studies investigating employment and mothers' well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Bryson & Warner-Smith, 1998)  Australia	Sample from Longitudinal Study on Women's Health, randomly selected from Medicare database, mid life cohort aged 45-50, n>14,000 women, 92% mothers	Cross-sectional investigation of relationship employment and health	SF-36 <sup>1</sup> mental health component scores	<ul style="list-style-type: none"> <li>• Women who are mothering and employed have worse mental health compared with those with child not at home</li> <li>• For women with a child &lt;18 living in household, better mental health associated with part-time hours, not full-time hours</li> </ul>
(Lee & Powers, 2002)  Australia	41,818 women from Longitudinal Study of Women's Health, 3 age cohorts: 18-23 years, 40-45 yrs and 70-75 years	Survey investigating relationship number of social roles and women's well-being	SF-36 <sup>1</sup> mental health component scores	<ul style="list-style-type: none"> <li>• For mid-life cohort, those with three or more roles were in the best mental and physical health, adjusting for country of birth, education, income, smoking and chronic illnesses.</li> </ul>
(Maclean, Glynn, & Ansara, 2004)	>13,000 women from national population data. Women aged 15-	Cross-sectional analysis of effect of multiple roles on women's mental	K-6 Scale Study specific measure of	<ul style="list-style-type: none"> <li>• Un-partnered mothers most likely to report distress (52% not working; 34% employed)</li> </ul>

Canada	64, including 60% of women with children.	health, including moderating effects of socio-economic status, and different role combinations	stress	<ul style="list-style-type: none"> <li>• Partnered employed women similar proportion reporting distress as partnered, not employed women (23% vs 27%)</li> </ul>
(Kasen, Cohen, Berenson, Chen, & Dufur, 2005) USA	Sample of 665 women, selected on basis of parenthood status and residence in 2 census districts. Two birth cohorts, both interviewed at mean age 43 yrs	Survey examining relationship between participation in work and family roles and depressive symptoms. Testing for differences between age cohort for generational change	SCL-90	<ul style="list-style-type: none"> <li>• In younger age cohort, no differences in depression by employment status</li> <li>• In older aged cohort, possibly different social norms, and poorer employment conditions would lead to increased symptoms in employed women.</li> </ul>
(Alexander & Baxter, 2005) Australia	Parents of children in the LSAC study, representative sample, both parents employed at time of study	Cross-sectional investigation of sources of work-family strain for employed parents	Study specific measure of work – family conflict	<p>Less work-family conflict associated with:</p> <ul style="list-style-type: none"> <li>• Higher job autonomy</li> <li>• Flexible working hours</li> <li>• Casual employment</li> <li>• More partner support</li> </ul>
(Strazdins, Shipley, & Broom, 2007) Australia	2,164 mothers with 4-5 yr old children, currently employed, drawn from LSAC national representative sample	Cross-sectional investigation of job quality and conditions and parent well-being	K6 Scale <sup>2</sup>	<p>Better mental health associated with:</p> <ul style="list-style-type: none"> <li>• access to paid family-related leave incl. maternity leave</li> <li>• job security</li> <li>• flexible start and finish times</li> <li>• autonomy and control at job</li> </ul>

1. Short-Form Medical Outcomes Study (Ware, Snow, Kosinski, & Gandek, 1993)

2. Kessler K6 screening scale for adults (Kessler, Andrews, Colpe, Hiripi, & Mroczek, 2002)

Research investigating the relationship between employment and women's mental health has continued to be informed by the scarcity versus enhancement hypotheses (Bryson & Warner-Smith, 1998; Kasen et al., 2005; Lee & Powers, 2002; Maclean et al., 2004). Two studies of mothers' with children in the household reported no differences in distress or symptoms of depression in partnered women whether employed or in the unpaid workforce (Kasen et al., 2005; Maclean et al., 2004). Reporting on data from a large national cohort in Canada, MacLean (2004) found that un-partnered mothers reported the most depressive symptoms of all mothers, although significantly fewer employed, un-partnered mothers reported symptoms (34%) than un-partnered mothers not in the paid workforce (52%).

Australian studies analysing data from the nationally representative Longitudinal Study of Women's Health have investigated the relationship between women's mental health and occupation in multiple roles from three age-cohorts of women (18-23 years; 40-45 years and 70-75 years). Lee (2002) found that women reporting three or more social roles - worker, partner, parent, student, or caregiver – had the best mental health on a standardised assessment (SF-36) (Ware & Kosinski, 1994) than women with fewer roles, when income, education, country of birth, smoking and chronic illnesses were controlled for. Reporting on data from the mid-life cohort only (40-45 years), Bryson (1998) found that employed women who were parenting a child of less than eighteen years, living in the household, had poorer mental health than those employed women who no longer had children living in the household. She concludes that the combination of two demanding roles can lead to stress and overload at this particular life-stage, but this conclusion cannot be confirmed in this cross-sectional investigation. Bryson also reported that better psychological functioning was associated with part-time employment of between 16-25 hours per week. Women employed for fewer than 16 hours per week, or conversely employed for more than 25 hours per week had less optimal functioning than those employed part-time. This suggests that job conditions such as hours of employment have implications for employed mothers' well-being.

Two recent Australian studies have examined job characteristics and parent well-being using data from the Longitudinal Study of Australian Children (LSAC) (Department of Family and Community Services, 2004). The LSAC sample is a nationally representative random sample of Australian children and their families, comprised of two age cohorts – infants less than one year of age and 4-5 year old children. Alexander and Baxter (2005) investigated sources of work-to-family strain for families in which both parents were employed. Work-to-family strain was assessed by responses to two statements describing the degree of conflict between employment and family life. Less 'strain' for mothers was associated with more emotional support from partner, more flexible employment hours, casual employment and more autonomy in their job. Strazdins et al. (2007) found that for the 2164 mothers of 4-5 year old children in the LSAC sample, fewer psychological symptoms

were associated with high quality job characteristics, defined as including access to family-related entitlements such as maternity leave, job security, flexible working hours and autonomy in the role. These authors conclude that workplace “family-friendliness” is integral to sustaining the well-being of employed mothers of young children.

Overall, the existing literature suggests that rather than exacting a psychological toll on women, participation in employment has the potential to convey mental health benefits to mothers. Similar results have been observed for physical health outcomes including better self-reported health status, fewer chronic illnesses and fewer hospital admissions (Cheng, Kawachi, Coakley, Schwartz, & Colditz, 2000; Lee & Powers, 2002; Repetti et al., 1989; Verbrugge, 1986). Much of the research investigating the relationship between women’s employment and mental health has been based on cross-sectional investigations, so much of what is known is by association between two variables, rather than identified in prospective studies. It is possible therefore, that those women who have better physical and psychological health are those also most likely to seek participation in the paid workforce, and this is a persistent problem inherent in most of the literature within this field.

There is also some evidence however, that under adverse employment conditions, such as long employment hours (Bryson & Warner-Smith, 1998), less flexible working hours, low job autonomy, depersonalising or unrewarding work (Alexander & Baxter, 2005; Aneshensel, 1986; Barnett & Baruch, 1985; Barnett & Marshall, 1992a; Strazdins et al., 2007), and with inadequate support from an intimate partner (Alexander & Baxter, 2005), mothers report worse mental health outcomes than mothers with optimal employment conditions.

The relationship between women’s employment and mental health has been subject to much research attention, and yet proportionately fewer studies have examined the relationship between employment and mental health in pregnancy, or in the postpartum period. While there is little reliable empirical support regarding adverse effects of employment participation on women’s mental health in adulthood in general, the postpartum period is psychologically unique, a time of rapid adjustment

to mothering, to changes within the intimate relationship, and to an increase in the amount of household labour. The role of employment participation, employment decisions and employment conditions coupled with the large increase in unpaid workload after the birth of a baby on women's perinatal well-being has been under-investigated. Understanding the relationship between employment and maternal psychological well-being during reproductive life begins in pregnancy.

## **4.2. WORKPLACE DISCRIMINATION IN PREGNANCY AND MATERNAL MENTAL HEALTH**

Pregnancy-related workplace discrimination is common in Australia (see Section 1.1.1.1), with an estimated one in five pregnant women reporting an adverse workplace incident during their pregnancy (Australian Bureau of Statistics, 2006d; Human Rights and Equal Opportunity Commission, 1999). Equal participation in the paid workforce during pregnancy is a fundamental right that needs to be protected. However, pregnancy may also require the employer to alter some job conditions for women so that they can manage the physical limitations of advanced pregnancy, to prepare for their (often temporary) withdrawal from the workplace following the birth, to negotiate a return to employment, and optimally to provide job security via formal maternity entitlements. These minimal provisions are mandated by law in Australia, and yet in some workplaces, these requirements appear to generate hostility and discrimination. The scant evidence that exists about Australian women's workplace experiences in pregnancy suggests that dismissal, demotion, reduction of employment hours, overt harassment and unfavourable perceptions about women's capacity to perform at their job during pregnancy are common (Charlesworth & MacDonald, 2007).

There is emerging evidence that for all employed adults, poor workplace conditions including job insecurity, high job demands coupled with low autonomy, and injustice in the workplace has measurable adverse effects on mental health (D'Souza, Strazdins, Lim, Broom, & Rodgers, 2003; Elovainio, Kivimaki, & Vahtera, 2002; LaMontagne, Ostry, Shaw, Louie, & Keegel, 2006). Furthermore, several authors have reported that sexist discrimination throughout the life-course is associated with adverse

psychological sequelae (Chen et al., 2005; Klonoff, Landrine, & Campbell, 2000; Landrine, Klonoff, Gibbs, Manning, & Lund, 1995; Pavalko, Mossakowski, & Hamilton, 2003; Rospenda, Richman, & Shannon, 2009). It is expected therefore that during pregnancy, discriminatory behaviour would also contribute to worse maternal mental health, yet few studies have examined the effect of pregnancy-related workplace discrimination on women's well-being.

Canady et al. (2008), surveyed 2731 American women, recruited through more than 50 prenatal care sites in a metropolitan setting in the middle trimester of pregnancy. They found that reporting gender-based discrimination in any one or more of a variety of daily settings (education, police, or medical care) including employment, was associated with more depressive symptoms on the CES-D scale (Radloff, 1977). Although cautious not to impute causality to this cross-sectional finding, Canady et al. suggest that experiencing any form of discrimination is a potential risk factor for worse maternal antenatal mood.

A recent Australian study analysed available data from relevant enquiries and complaints to employee advocacy, workplace rights and telephone advice services in Victoria (Charlesworth & MacDonald, 2007). Charlesworth and MacDonald combined this analysis with in-depth interviews from 13 women who had experienced workplace discrimination in pregnancy or when they resumed following a period of maternity leave. The study reported a range of discriminatory behaviours, with the most common being termination of employment when the pregnancy was revealed by means of redundancy or failure to renew a contract, and discrimination or harassment such as abusive remarks, not being provided access to sick leave, unpaid maternity leave or time off for medical appointments, having hours or shifts reduced and not accommodating the physical constraints of pregnancy. The experience of discrimination for the 13 women interviewed affected their current well-being, their financial resources, their current employment status and their future employment prospects. In addition, women who contacted the services to obtain legal advice or information found this process to be distressing, confusing and disempowering. Given that all forms of discrimination across the life-course have adverse psychological



outcomes, it is expected that pregnancy-related workplace discrimination would have similar psychological sequelae, and yet there is little current Australian evidence to describe this.

### **4.3 EMPLOYMENT AND POSTPARTUM MATERNAL MENTAL HEALTH**

Studies of “role-based” conceptualisations of the mental health outcomes of women’s employment participation have not adequately captured the variability in women’s mental health. Some have posed that these concepts are outdated (Barnett & Hyde, 2001; Elgar & Chester, 2007), premised on gendered, cultural stereotypes that prevailed in the 1950’s and 1960’s when the role-based theories of Parsons (1949) and Goode (1960) emerged.

Several theorists have argued therefore that variability in employed women’s psychological well-being would be better understood by accounting for the particular, interacting circumstances of women’s lives that could enhance, or adversely affect the overall benefit generally accrued by workforce participation across the life-course (Barnett & Hyde, 2001; Elgar & Chester, 2007). Barnett (2001) argues for example that employment potentially conveys social support, opportunity and income, yet this could be negated by experience of discrimination, poor remuneration and frustration brought about by performing a concurrent demanding and time-consuming unpaid workload.

Pregnancy and the postpartum period is accompanied by rapid psychological adjustment, and an intensive increase in the unpaid domestic workload. Given that maternal mood is governed by a range of interacting social circumstances (Scottish Intercollegiate Guidelines Network, 2002), it is plausible that employment, although generally considered to be associated with better mental health at other stages of the life-course, has distinct psychological sequelae during pregnancy and following birth. Furthermore, it is also likely that some employment conditions and characteristics interact with women’s personal and family circumstances to influence mental health outcomes.

From the early 1990's to the present, a body of evidence about women's employment participation, and the relationship of this to their health and well-being, specific to the postpartum, has emerged. By focussing specifically on the perinatal period, these studies have expanded "role-based" concepts, concentrating on the particular personal circumstances and employment characteristics present in women's lives across the transition to motherhood that may influence their psychological well-being. Hyde et al. (2001) argue that in order to improve on linear conceptualisations of the relationship between maternal employment and well-being posed by the 'scarcity hypothesis' for example, research needs to conceptualise complexity, including investigation of a broad range of interacting factors contributing to women's well-being in the context of postpartum employment.

Few recent studies have prospectively compared mood in employed and non-employed mothers of infants, as most of the evidence about well-being and employment has been generated from samples of women recruited in the postpartum who are either already employed, or intending to resume employment. One Canadian study of 447 women recruited at birth and surveyed at 6 months following birth found fewer depressive symptoms in women on maternity leave than those either already employed or unemployed with no job to return to (Rivieres-Pigeon, Seguin, Goulet, & Descarries, 2001). Two representative prospective studies have also found that not participating in the paid workforce in the first postnatal year is a risk factor for worse maternal mood outcomes (Rubertsson, Waldenstrom, Wickberg, Radestad, & Hildingsson, 2005a; Saurel-Cubizolles, Romito, Ancel, & Lelong, 2000).

The evidence about the direct effect of employment on maternal well-being in the perinatal period is sparse, but emerging conceptualisations about maternal employment have expanded to accommodate a range potential factors contributing to maternal mental health, such as maternity leave duration, job status and characteristics, women's preference about the optimal combination of paid work and infant care, partner emotional and instrumental support, infant temperament and maternal recovery from childbirth.

### **4.3.1 Maternity leave**

Maternity leave is an employer-provided workplace entitlement, which protects women's time out of the paid workforce to care for and develop a relationship with their new infant, to establish breastfeeding, to become skilled at the tasks of parenting an infant, and to accomplish some of the psychological adjustment that accompanies a major life transition. Moreover, maternity leave secures women's jobs for the period of that entitlement, and if it is paid maternity leave, allows new mothers to have an independent income for some of the time they spend in the unpaid workforce, relieving immediate financial pressure. Legislative provision for unpaid maternity leave is currently provided in Australia, but no similar provision currently exists for paid maternity leave (see Chapter one, section 1.1.3).

Few studies, either Australian or international, have investigated the relationship between women's eligibility for, access to, or negotiation about maternity leave as a workplace-provided entitlement and their psychological well-being, either in pregnancy or following the birth. Several studies however, have examined the length of women's maternity leave taken following a birth and women's postnatal wellbeing. International studies investigating this relationship using standardised assessments of maternal well-being are summarised in Table 4.3. These studies have been conducted predominantly in the United States of America, where women have comparatively short periods of leave following birth, and return to the paid workforce rapidly (Crosby & Hawkes, 2007). Sixty percent of American women resume employment by three months after birth, when the 12-week statutory unpaid family leave entitlement ends (Crosby & Hawkes, 2007; Klerman & Leibowitz, 1994). Australian women have more gradual employment resumption following birth, in part because of the statutory provision of 52 weeks of unpaid maternity leave for eligible women, with 40% of women resuming by twelve months (Australian Bureau of Statistics, 2006d). The relevance of these American studies to the Australian context is therefore limited by the different policy, workplace and cultural contexts.

**Table 4.3 Studies examining relationship between length of workforce absence and maternal well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Gjerdingen et al., 1991)  USA	Small convenience sample (n=37), white middle class married women, employed and expecting first baby	Is maternity leave length related to postpartum recovery and mental health? Assessed in pregnancy and at 6,12 and 24 weeks after birth	HSCL <sup>1</sup>	<ul style="list-style-type: none"> <li>No differences in depressive symptoms by length of maternity leave (compared &lt;6w leave, 6-12w, 3-6mos, and not resumed) in depressive symptoms</li> </ul>
(Gjerdingen & Chaloner, 1994)  USA	436 white, employed, married, nulliparous women recruited via two maternity hospitals	Prospective study of effect of maternity leave, social support, work hours to mental health at 1,3,6,9, and 12 months postpartum	MHI <sup>2</sup>	<ul style="list-style-type: none"> <li>&gt;24 weeks leave associated with better mental health at 9 and 12 months</li> <li>Fewer work hours, better partner support associated with less distress</li> </ul>
(Hyde, Klein, Essex, & Clark, 1995)  USA  <i>WMLHP*</i>	570 partnered women, recruited through varied antenatal sites in trimester two, 82% or whom were employed, 38% nulliparous	Prospective investigation of relationship between work status, mental health and maternity leave duration at one and four months after birth. Pregnancy mood assessments conducted	CES-D <sup>3</sup> STAI <sup>4</sup> SSAI <sup>5</sup>	<ul style="list-style-type: none"> <li>No differences in depression full-time employed women and parttime / non-employed women at 4 mos when earlier depression controlled for</li> <li>Higher anxiety at 4 months in women employed full-time (n=151)</li> <li>Range of factors contribute differently to employed women's distress at 4 mos.</li> </ul>
(McGovern et al., 1997)  USA	Random sample of 654 women employed in pregnancy, identified from state birth records at 5 months postpartum, over-sampled women with high obstetric risk, single women.	Cross-sectional study at 6-9 months postpartum of range of factors contributing to women's physical and mental health status at approx. 7 months after birth	MOS <sup>6</sup>	<ul style="list-style-type: none"> <li>Longer leave duration associated with better maternal physical and mental health at 7 months.</li> <li>More sleep, better infant health, more social support, high job satisfaction contributed to better well-being</li> </ul>
(Rivieres-Pigeon et al., 2001)  Canada	447 women recruited during on postnatal wards of four urban maternity sites	Cross-sectional study of relationship between postpartum depressive symptoms and	CES-D <sup>3</sup> ASSIS <sup>7</sup>	<ul style="list-style-type: none"> <li>Direct association between depression and employment status, women on mat leave least distress</li> <li>Multivariate analyses showed no greater employment effect than</li> </ul>

		employment at 6 months - independent and interactive effects		social support, stressful events.
(Hyde, Essex, Clark, & Klein, 2001) USA <i>WMLHP*</i>	570 pregnant partnered women, recruited from three hospital sites for WMLHP	Prospective study of maternity leave, marital compatibility and postnatal employment in pregnancy and 4 months postpartum	Unpublished assessment of marital relationship	Sources of dissatisfaction: <ul style="list-style-type: none"> <li>• Short (&lt;6w) leave predicted women perception of unequal household division of labour</li> <li>• Long work hours predicated job dissatisfaction</li> <li>• Dissatisfaction associated with role overload, which in turn associated with marital incompatibility</li> </ul>
(Feldman, Sussman, & Zigler, 2004) USA	98 dual-earner parents of 3-5 month old first infants (10% response), women employed in pregnancy and resumed at survey	Survey of factors related to the length of maternity leave and transition to parenthood at 3-5 months after birth	STAI <sup>4</sup> BDI <sup>8</sup>	Women's longer leave predicted by: <ul style="list-style-type: none"> <li>• Preoccupation with infant</li> <li>• Less depressive symptoms</li> <li>• Less career salience</li> <li>• Higher marital support</li> </ul> Adaptation to employment: <ul style="list-style-type: none"> <li>• Less hours</li> <li>• High marital support</li> <li>• Less depression</li> <li>• High career salience</li> </ul>

\*Wisconsin Maternity Leave and Health Project

1. Hopkins Symptom Check-list (Derogatis, Lipman, & Rickels, 1974)

2. Mental Health Inventory (Veit & Ware, 1983)

3. Centre for Epidemiological Studies – Depression (Radloff, 1977)

4. State-Trait Anxiety Inventory (Spielberger et al., 1970)

5. Spielberger State Anger Inventory (Spielberger, Jacobs, Russell, & Crane, 1983)

6. Medical Outcomes Study (Stewart, Ware, Sherbourne, & Wells, 1992)

7. Arizona Social Support Interview Schedule (Barrera, 1981)

8. Beck Depression Inventory (Beck & Beck, 1972)

A group of studies have tested the hypothesis that a longer absence from the paid workforce following birth would be protective against adverse mental health outcomes. It is plausible that longer leave duration conveys to women more time to recover from childbirth, develop a sense of competence in mothering infant, and adapt to the physical and emotional adjustment required in the early months following birth, and some support has been provided for this hypothesis.

One small American study of a convenience sample of 37 professional women, expecting their first infant, found no relationship between length of absence from the paid workforce and depressive symptoms at 6, 12 and 24 weeks following birth (Gjerdingen et al., 1991), although may not have been sufficiently powered to detect a

significant relationship. Conversely, two further studies have reported better mental health in women who had a longer absence from the workforce, compared to women taking shorter leaves. In a prospective study, Gjerdingen and Chaloner (1994) found that, along with being employed for fewer hours each week and having adequate practical and emotional support from partner, a leave period of over 24 weeks taken after the birth contributed to better psychological well-being, including less depression and anxiety, at 9 and 12 months postpartum. A second cross-sectional investigation (McGovern et al., 1997) randomly recruited 654 women who were employed in pregnancy from state birth records, and collected mental health and well-being data at 6-9 months postpartum using standardised scales from the Medical Outcomes Study (Stewart et al., 1992). A leave from paid work of over 12 weeks was associated with increased vitality at 7 months postpartum, and a leave of over 15 weeks had a positive association with better maternal mental health at 7 months. Similarly, a cross-sectional French study of 632 women, found that at 6 months postpartum, women on maternity leave from their employment reported the least distress on the Centre for Epidemiological Studies – Depression Scale when compared to either employed women, or women occupied in full-time infant care (Rivieres-Pigeon et al., 2001).

A group of studies have reported on the *Wisconsin Maternity Leave and Health Project* (WMLHP) and found no evidence to support a direct effect of length of maternity leave on women's mental health. The WMLHP was a longitudinal investigation of 570 women, 82% of whom were employed during pregnancy, and over one third of whom were expecting their first baby (Clark, Hyde, Essex, & Klein, 1997; Hyde et al., 1995; Klein, Hyde, Essex, & Clark, 1998). Participants were recruited through two private obstetric clinics and one maternity hospital, and were generally well-educated, socio-economically advantaged and all were partnered. Data were collected in the second trimester of pregnancy, and at 1, 4 and 12 months following birth using standardised assessments of maternal well-being including the Centre for Epidemiological Studies - Depression Scale (Radloff, 1977), the State-Trait Anxiety Inventory (Spielberger et al., 1970), and the State-Trait Anger Inventory (Spielberger et al., 1983).

Hyde et al. (1995) hypothesised that the duration of women's postpartum absence from the workforce would interact with other employment characteristics, including employment status and number of hours employed per week, to affect their psychological well-being. Using WMLHP data, Hyde et al. found that a shorter maternity leave of less than 6 weeks coupled with low perceived job satisfaction and few job rewards contributed to higher depression in employed women at four months postpartum. An unrewarding job, one with few interests or accomplishments attached to it, independently predicted higher levels of anger at four months after birth, and this effect was strongest for women taking the shortest leaves of less than 6 weeks. Duration of workforce absence had no independent or interacting effect on women's self-reported anxiety at 4 months postpartum. The authors conclude that women's length of time out of the paid workforce is a salient variable in consideration of postnatal mental health as it interacts with job characteristics. They offer the interpretation that a short absence can heighten the effects of resuming at an unsatisfying, unrewarding job, as this places demands on time without conveying the psychological benefits of a personally satisfying, relevant or rewarding occupation. They also note the importance of looking at distinct aspects of psychological disturbance - anxiety, depression and anger – rather than using a global measure of well-being, as in this study, each psychological outcome had distinct, interacting risk factors.

The WMLHP data were also analysed to examine the relationship between the duration of women's absence from the workforce following birth, and marital incompatibility, assessed, using non-standardised items characterising women's perceptions of their partner's understanding, closeness, degree of conflict and the perceived distribution of the domestic workload (Hyde et al., 2001). Using data from women in the sample who had resumed employment by four months postpartum (46%), Hyde et al. found that women who had longer periods of leave (>6 weeks) were less likely to report dissatisfaction with the division of household labour at four months postpartum, and this was particularly so for women who were employed for long hours. This suggests that a longer absence from the paid workforce facilitates couples' negotiation about the equitable division of the unpaid workload. It is also

possible that the adverse effects of performing the majority of the unpaid workload are only exacerbated once employment is resumed. Hyde et al. argue that this confirms the findings of the earlier study concluding that short maternity leave is a risk factor that exacerbates the effect of other psychosocial factors, such as marital conflict, unsatisfying job conditions and division of the unpaid workload and this in turn is a putative risk for worse maternal mood outcomes.

In a methodologically weak survey of 98 employed women who had given birth 3-5 months prior to the survey, Feldman et al. (2004) hypothesised that a range of factors would be associated with the timing of women's employment resumption including the quality of the partner relationship, employer attitudes, infant temperament and mothers' well-being and attitudes about the relative importance of career and family. Longer absence from the workforce following the birth, defined as more than 12 weeks, was associated with higher perceived support from partner, fewer depressive symptoms, a higher degree of preoccupation with the infant and lower career salience. Infant temperament and employer attitudes had no significant relationship with the length of maternity leave taken. Although income level was collected in the study, it was not included in analysis as factor associated with employment resumption. Other than standardised psychometric measures used to assess maternal well-being, this study used single-item non-standardised assessments of infant, marital, career and employer variables and is limited by the very low response rate from eligible couples (10%).

Overall, studies examining the effect on women's well-being of the length of absence from the paid workforce have sampled from well-educated, socio-economically advantaged, partnered women. Studies that have observed a direct protective effect of a longer workforce absence have not controlled for other psychosocial variables known to contribute to maternal psychological well-being in the postpartum (Gjerdingen & Chaloner, 1994; McGovern et al., 1997; Rivieres-Pigeon et al., 2001). This observation needs to be confirmed prospectively in studies assessing a broad range of social determinants of maternal mood, in order to understand the relative



contribution the provision of maternity leave and the timing of women's workforce resumption following birth.

### **4.3.2 Employment characteristics**

Several studies have investigated the role of particular job characteristics, such as full-time, part-time or casual employment status and number of hours employed per week, and qualitative aspects of the job such as autonomy and flexibility, on maternal mental health in employed women following birth. Several of these were summarised in Table 4.3 above, and the remainder appear in Table 4.4 below.

**Table 4.4 Studies investigating employment characteristics and maternal mood**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Hyde & Clark, 1991)  USA	55 women, partnered and ses advantaged recruited from antenatal classes and clinic in low-income area	Prospectively exploring parental leave and well-being in pregnancy, and 1 and 12 months postpartum	CES-D <sup>1</sup> STAI <sup>2</sup> DAS <sup>3</sup>	<ul style="list-style-type: none"> <li>• One month after birth, women employed, or planning to be employed part-time had lowest depressive symptoms compared to those in full-time employment (NS)</li> <li>• Poor marital quality contributed to depression particularly for part-time women.</li> </ul>
(Leathers, Kelley, & Richman, 1997)  USA	Homogenous convenience sample of 55 Caucasian, married couples, nulliparous, recruited from 7 hospital sites	Longitudinal study of role of employment satisfaction, control and autonomy in postpartum depression. Assessments in T2 pregnancy and 6 months postpartum	CES-D <sup>1</sup>	<ul style="list-style-type: none"> <li>• Relationship between high autonomy, partner support and social support at work and less symptoms for both partners.</li> </ul>
(Klein et al., 1998)  USA  <i>WMLHP*</i>	Follow-up study of Hyde et al, 1995	Prospective assessment relationship between maternity leave, employment status and mental health at 1,4 and 12 months.	IBQ <sup>4</sup> CES-D <sup>1</sup> STAI <sup>2</sup> SSAI <sup>5</sup>	<p>Increased depression, anxiety and anger associated with:</p> <ul style="list-style-type: none"> <li>• Job overload</li> <li>• Infant distress</li> <li>• Low marital quality</li> <li>• No effect length of leave,</li> <li>• longer leave in women of high career salience was associated with more depression</li> </ul> <p>Adjusted for anger, anxiety and depressive symptoms in pregnancy</p>
(Baxter, Gray, Alexander et al., 2007)  Australia <i>LSAC**</i>	Representative national cohort of >10,000 infants and 4-5 year old children and their parents	Cross-sectional analysis of variations in well-being according to work hours, conditions and job type	Non-standardised assessments of well-being, coping and distress	<ul style="list-style-type: none"> <li>• Full-time employment associated with worse well-being than part-time employment</li> <li>• Self-employment indicator of poor well-being, less job satisfaction</li> <li>• Job security, flexibility and autonomy important</li> </ul>

\*Wisconsin Maternity Leave and Health Project

\*\* Longitudinal Study of Australian Children

1. Centre for Epidemiological Studies – Depression (Radloff, 1977)

2. State-Trait Anxiety Inventory (Spielberger et al., 1970)

3. Dyadic Adjustment Scale (Spanier, 1976)

4. Infant Behaviour Questionnaire (Rothbart, 1981)

5. Spielberger State Anger Inventory (Spielberger et al., 1983)

There has been inconsistent evidence about the role of number of employment hours per week on employed mothers' postpartum well-being. One cross-sectional study of 55 socio-economically advantaged, partnered women found no differences at one month after birth on a standardised assessment (CES-D) (Radloff, 1977) in women who had resumed, or were planning to resume part-time employment when compared with women resuming full-time employment (Hyde & Clark, 1991). In a prospective investigation of the role of employment in women's mental health, Gjerdingen and Chaloner (1994) used the Mental Health Inventory (Veit & Ware, 1983) at 1,3,6,9 and 12 months postpartum. They found that fewer employment hours per week made an independent contribution to less distress and depressive symptoms at all of these intervals when social and partner support and length of maternity leave were controlled for in the analysis. Similarly, Hyde et al. (1995), using data from the WMLHP, compared women in full-time employment with those in part-time employment, or occupied in full-time infant care. At 4 months postpartum, they found no differences in depressive symptoms on the CES-D between these two groups when CES-D assessments taken at one month were controlled for. However, they found that anxiety, assessed using the State-Trait Anxiety Inventory (Spielberger et al., 1970), was significantly higher in the 26% of participants who had resumed full-time employment by four months postpartum.

In further analysis of these same WMLHP data, Hyde et al. (2001) found that women working at a paid job for longer hours each week were more likely to report dissatisfaction with their employment status than women who were working fewer hours at their job at four months postpartum. Dissatisfaction with employment status was assessed by a single item, asking women to indicate whether they preferred employment or infant care. This study also assessed women's feelings of "role overload" – how often they felt "that things added up to being too much", or felt "pulled apart by conflicting obligations". Being employed for long hours contributed to women's reported experience of role overload for those who also perceived that the division of household labour was inequitable. The authors conclude that long paid work hours exacerbate the effect of other stressors to create negative psychological outcomes. Feldman et al. (2004) assessed maternal adaptation on at 3-5 months

postpartum on study-specific items that addressed job performance, and any interference from thoughts and concerns about their infant while at their job. They found that better adaptation was reported by women employed for fewer hours each week.

One Australian study has addressed the role of employment hours in parents' reports of well-being and psychological distress. Using aggregated cross-sectional data from the first wave of data collected from over 10,000 children in the *Longitudinal Study of Australian Children* – infants aged 3-19 months and 4-5 year olds – Baxter investigated variations in parent's well-being according to work hours (Baxter, Gray, Alexander et al., 2007). For women, full-time employment was associated with worse well-being on all indicators, including coping (“how well do you think you are coping?”), psychological distress defined as feeling nervous, restless or hopeless and number of perceived current life difficulties or stresses. Women employed part-time for 16-24 hours per week or 25-34 hours per week reported fewer life difficulties, fewer problems coping and less psychological distress than full-time employed women. However, this study uses non-standardised assessments of maternal well-being, and data for mothers of infants is combined with those of mothers of older children, so evidence about the number of optimal employment hours specific to the postpartum is yet to be well-described.

A small body of literature, of mixed methodological quality, has investigated the effect of other job characteristics on maternal well-being in the early months after childbirth. McGovern et al. (1997) surveyed a random sample of 654 American women, all of whom were employed during pregnancy. They found that women who experienced more job satisfaction assessed using non-standardised items reported more vitality and less functional limitation to their daily activities including less fatigue, less emotional distress and fewer physical symptoms than women reporting less job satisfaction at 7 months after adjusting for pregnancy mood. Leathers et al. (1997), also an American study, prospectively investigated the role of perceived control and social support at the workplace on depressive symptoms, assessed using the CES-D (Radloff, 1977) at 6 months postpartum, also controlling for pregnancy

mood. Working under time pressure and deadlines, and having limited control over job expectations were predictive of more depressive symptomatology, as was feeling socially isolated in the workplace. However, this study was based on a homogenous, convenience sample of a small number of women (n=55), so the capacity of these results to be generalised to more diverse samples of childbearing women is limited.

These results were supported by Klein et al. (1998). These authors examined the relationship between women's employment quality and their mental health at 1, 4, and 12 months postpartum using WMLHP data, adjusting for baseline pregnancy measures of mental health. They found that women who reported more "job overload" such as being under-appreciated, and having an inflexible schedule also reported more depression, anxiety and anger. Conversely, women who reported high autonomy and adequate workplace support in their paid role reported less anxiety.

Baxter et al (2007) also reported several job conditions that were associated with better well-being in mothers of infants and 4-5 year old children. Worse maternal well-being, described as difficulty coping, current life stresses and distress, was associated with being self-employed, having no flexibility about hours of employment, having little job security, and having little autonomy within their job.

On the current evidence, it appears that favourable employment conditions including working fewer hours each week, autonomy, flexibility and security may be protective against worse maternal mood outcomes, and stronger evidence for this is yielded by prospective studies that adjust for earlier mood assessments in analyses (Klein et al., 1998; Hyde et al., 1995). However, much of the current evidence is of limited generalisability, based largely on non-representative, convenience samples of women.

### **4.3.3 Employment preference**

As well as employment characteristics, it is likely that women's feelings and preferences for paid employment while caring for an infant influence the effect of employment participation on their mental health. Three American studies using standardised assessments of maternal mood have investigated whether postpartum depression is explained by the conflict between women's preferences for postnatal

employment, and their actual employment status. These studies are summarised in Table 4.5.

**Table 4.5 Studies investigating the relationship between maternal employment status, maternal preferences, and depressive symptoms**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Pistrang, 1984)  USA	Homogenous, conveniences sample of 42 employed and 63 not employed women, first baby aged 5-9 months,	Relationship between attitudes to employment, postnatal work status and experience of motherhood	PoMS – D <sup>1</sup> Unpublished assessments of satisfaction, maternal role, work orientation	<ul style="list-style-type: none"> <li>• High job involvement in non-working women predicted irritability and depression, more marital change and more motherhood costs</li> <li>• Employment status congruent with job career salience predicted positive experience of motherhood</li> </ul>
(Hock & DeMeis, 1990) Study one USA	209 women consecutively recruited from 3 large maternity sites	Is depression related to the conflict between preferred and actual postnatal employment status at 12 months?	MSAS <sup>2</sup> BDI <sup>3</sup>	<ul style="list-style-type: none"> <li>• Women who were not employed, but wanted to be, had higher depressive symptoms than those with congruent work status and preference</li> </ul>
(Klein et al., 1998)  USA  <i>WMLHP*</i>	Follow-up study of Hyde et al, 1995	Prospective assessment relationship between maternity leave, employment status and mental health at 1,4 and 12 months.	IBQ <sup>4</sup> CES-D <sup>5</sup> STAI <sup>6</sup> SSAI <sup>7</sup>	<p>Increased depression, anxiety and anger associated with:</p> <ul style="list-style-type: none"> <li>• Job overload</li> <li>• Infant distress</li> <li>• Low marital quality</li> <li>• No effect length of leave,</li> <li>• longer leave in women of high career salience was associated with more depression</li> </ul>

1. Profile of Mood States – Depression subscale (McNair et al., 1971)

2. Maternal Separation Anxiety Scale (Hock et al., 1989)

3. Beck Depression Inventory (Beck & Beck, 1972)

4. Infant Behaviour Questionnaire (Rothbart, 1981)

5. Centre for Epidemiological Studies – Depression (Radloff, 1977)

6. State-Trait Anxiety Inventory (Spielberger et al., 1970)

7. Spielberger State Anger Inventory (Spielberger et al., 1983)

Pistrang (1984) hypothesised that women who demonstrated high job involvement and career salience prior to first childbirth birth would report a less positive experience of motherhood at 5-9 months postpartum if they had not resumed employment than those women fulfilling their preferences. For the 63 non-employed

women, those who reported high psychological involvement with their jobs or careers were significantly more likely to report more depressive symptoms, more irritability on a non-standardised assessment, and more compromises and costs associated with motherhood than non-employed women reporting low job salience. Pistrang concludes that for women who regard their paid work as rewarding, important and of high psychological salience, the shift to the unpaid workforce after first childbirth is a loss, which may in turn lead to increased depression and irritability.

Hock and DeMeis (1990) compared four groups of women at 12 months postpartum: those who preferred full-time infant care and were not employed (95 women); those who preferred infant care and were employed (61 women); those who preferred employment but were not employed (9 women), and those who preferred employment and were in the paid workforce (44 women). Psychological well-being was assessed using the Beck Depression Inventory (Beck & Beck, 1972). Mild elevated depressive symptoms were reported by the 9 women who preferred employment but were not in the paid workforce at twelve months. Given the small number of women in the group reporting increased depressive symptoms, the authors performed this same analysis on 164 women in the same cohort who provided complete data at 8 months after birth, when 91% of employed women had already resumed. The results were replicated in this analysis, although there were only twelve women in the employment preference - not employed group, the only group reporting elevated depressive symptoms.

These studies are methodologically weak, hampered by convenience sampling of small numbers of women, the majority of whom are professional, educated and partnered. As they are cross-sectional in design, any association noted needs to be confirmed in longitudinal studies of diverse, representative cohorts of childbearing women. Klein et al, (1998), using data from the prospective *Wisconsin Maternity Leave and Health Project* (WMLHP) assessed 570 women at 1, 4 and 12 months postpartum using the Centre for Epidemiological Studies-Depression instrument (Radloff, 1977), the State Trait Anxiety Inventory (Spielberger et al., 1970) and the State-Trait Anger Inventory (Spielberger et al., 1983). Depression, anxiety and anger symptoms were significantly higher in women whose current employment status was

incongruent with their own preferences, assessed using study-specific items. Women who were not employed but wanting to participate in the paid workforce reported the most distress, when mental health at the one-month assessment was adjusted in analyses. The prospective study design in this analyses allows the authors to conclude that high employment salience and preference to be employed are protective against distress, anger and anxiety for women who are employed following childbirth. However, the WMLHP, while methodologically robust, sampled predominantly from Caucasian, socio-economically advantaged, partnered women, so the relevance of these results to diverse samples of women is limited.

#### **4.3.4 Quality of the intimate partner relationship**

It is well established that women's well-being in the perinatal period is protected by a caring, warm and affectionate intimate relationship. Few studies have investigated the role of the marital relationship in contributing to women's well-being as they resume employment and negotiate the competing demands of paid and unpaid labour for the first time. Details of these studies have been summarised in Tables 4.3 and 4.4 above.

Several studies of mixed methodological quality have observed a relationship between better quality partner relationship and better mood in employed women. One longitudinal study of a convenience sample of 55 women found that at 6 months postpartum, women reporting more intimacy and emotional support from their partners also reported less depressive symptoms on the CES-D (Radloff, 1977) than women reporting a less confiding intimate relationship (Leathers et al., 1997). In a cross-sectional investigation of employed parents, Feldman et al. (2004) investigated sources of support for women's employment resumption at 3-5 months postpartum. They found that women who reported adequate emotional and practical support from their partners were more likely to report optimal functioning in their paid job compared to women reporting less adequate partner support. This study however is hampered by a low response.

The longitudinal WMLHP included an unpublished assessment of marital compatibility, the partner role quality scale, a 19 item measure of perceived rewards - appreciation, closeness, and understanding – and perceived concerns, such as



incompatibility, within the intimate relationship (Hyde et al., 1995; Klein et al., 1998). In addition, the WMLHP questionnaires included one item assessing women's perception of the equity of the division of household labour. They found that low marital compatibility, combined with a short absence from the workforce of less than 12 weeks predicted increased depressive symptoms. Similarly, women who took a short leave also were more likely to report dissatisfaction with the division of the unpaid workload, regardless of the number of hours of employment they were working on resumption.

In further analysis of these data, Hyde et al. (2001) investigated factors associated with marital incompatibility at 4 months for employed and non-employed women. They hypothesised that mothers' "role strain" would be predicted by the number of children in the household, so they analysed primiparous and multiparous women separately. Reported marital incompatibility in pregnancy was the strongest predictor of marital incompatibility at 4 months after birth for all women. Women who reported feeling pressed for time and unable to "juggle conflicting obligations" were more likely to report marital incompatibility, although this effect was strongest for multiparous women. For mothers of a first baby, marital incompatibility was associated with a discrepancy between their preferred form of non-parental care, and the actual care that they were currently using. The authors concluded that for a first infant, child care choice and access are paramount concerns, and are thus putative sources of marital conflict and tension. In couples having a subsequent baby, women are additionally accommodating the unpaid workload of caring for more than one child, and for them, this is the main factor associated with marital disruption.

Few studies of women's postnatal employment have used standardised, published assessments of the quality of the partner relationship. Furthermore, the above American studies take place relatively early in the postpartum year, when many Australian women would not yet have resumed employment, and when marital change and renegotiation would be ongoing. The relative contribution of partner emotional support and practical help with domestic work and infant care to women's

employment decisions, and to their subsequent psychological well-being has been less well described.

#### **4.3.5 Social support**

Adequate emotional support from close and trusted others is protective of postnatal mental health for all women. Accordingly, several studies have reported a relationship between the perceived adequacy and availability of social support, and better mental health of employed mothers of infants.

Cross-sectional studies have reported a significant relationship between better maternal mental health in employed mothers, and more available social support at six to seven months postpartum. McGovern et al. (1997) (see Table 4.3) assessed mental health and well-being in a random sample of over 600 women, at 7 months following birth, using the Medical Outcomes Study Scale (Stewart et al., 1992). They found that women who reported more social support on a 5-item unpublished assessment of the perceived availability of social support also reported better mental health and vitality than women who reported less available social support. Similarly, Rivieres-Pigeon et al. (2001) found that at 6 months postpartum, there was no significant relationship between employment status and depressive symptomatology on the CES-D (Radloff, 1977), but adequate social support predicted fewer depressive symptoms for all women, whether currently employed, unemployed or on maternity leave.

Leathers et al. (1997), summarised in Table 4.4, examined workplace social gratification, as well as items assessing the perceived emotional and practical support, intimacy and reassurance from their mother, father, employer and co-workers in a small (n=55) convenience sample of women assessed in pregnancy and at 6 months postpartum for depression using the CES-D (Radloff, 1977). More social isolation in the workplace was associated with more depressive symptoms for employed women, as was less emotional support from partner for all women. However, the authors found that more instrumental assistance from partner had an unexpected effect, as it was associated with more, rather than less, psychological distress. Having a supportive employer was not significantly related to maternal mood. These findings however, could be due to chance given the small number of participants in this study.

Furthermore, the sample is an homogenous sample of socioeconomically advantaged women, so these results cannot be generalised to more diverse samples of women.

Evidence about social support provided to employed women in the postpartum period has been provided by cross-sectional investigations. It is expected that adequate social support as women resume postpartum employment would be protective against the common mood disorders of depression and anxiety, but the relative contribution of this for employed women's postpartum well-being has not been comprehensively described.

#### **4.3.6 Infant factors**

Learning to provide responsive and sensitive care to an infant is one of the many tasks associated with new parenting, and mastery contributes to optimal parental competence and confidence. Emerging evidence has suggested a link between difficult infant behaviour, including prolonged crying, feeding difficulties, fussing and resistance to soothing, and maternal distress and fatigue (see Chapter Two, section 2.3.2.2) (Bayer et al., 2007; Beebe et al., 1993; Hiscock & Wake, 2001). Few studies have systematically examined whether infant behaviour, including feeding and sleeping difficulties, are salient to women's decisions about employment participation, or indeed has an effect on their well-being in the context of postnatal employment. Two studies have included infant factors as potentially influencing maternal well-being in the context of postpartum employment, and are summarised in Table 4.6. Both studies have emerged from the same cohort study (WMLHP), that used standardised assessments of maternal mood.

**Table 4.6 Studies investigating infant factors, maternal employment and maternal well-being**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Clark et al., 1997)  USA  <i>WMLHP*</i>	198 employed mothers, at 4 months, subsample of <i>WMLHP</i>	Assess relationship of length of maternity leave and mother-infant interactions at 4 months	PCERA <sup>1</sup> CES-D <sup>2</sup> PSI <sup>3</sup> IBQ <sup>4</sup>	<ul style="list-style-type: none"> <li>• High depressive symptoms and short leave associated with less affective involvement with infant</li> <li>• Difficult infant behaviour and depressive symptoms associated with less affective interaction</li> </ul>
(Hyde, Else-Quest, Goldsmith, & Biesanz, 2004)  USA  <i>WMLHP*</i>	380 women recruited from three hospital sites in pregnancy. Homogenous sample of Caucasian, married women follow-up of <i>WMLHP</i>	Prospective study of child behaviour and temperament on mothers' work functioning at 4,12 months after birth, and when child is 3 and 4 years of age	IBQ <sup>4</sup> PSI <sup>3</sup> CES-D <sup>2</sup> Non-standardised assessment of work rewards / concerns	<ul style="list-style-type: none"> <li>• At 4 months: More difficult infant behaviour associated with lower parenting competence, but not maternal affect.</li> </ul>

1. Parent-Child Early Relational Assessment (R. Clark, Paulson, & Conlin, 1993)

2. Centre for Epidemiological Studies – Depression (Radloff, 1977)

3. Parenting Stress Index (Abidin, 1986)

4. Infant Behaviour Questionnaire (Rothbart, 1981)

Clark et al. (1997) examined cross-sectionally the relationship between length of maternity leave and the quality of mother-infant affective interactions at 4 months postpartum in a sub-sample of 198 women from the *WMLHP* prospective study. Women completed the CES-Depression scale (Radloff, 1977), and the Infant Behavior Questionnaire (Rothbart, 1981), an assessment of infant reactivity and self-regulation. In addition, mother-infant interaction was observed and assessed using the Parent-Child Early Relational Assessment Scales (Clark et al., 1993), a systematic measure of the observed quality and amount of parental responsiveness, sensitivity, warmth and consistency, and infant's communication, irritability, social skills and emotional lability. Length of maternity leave moderated the relationship between maternal depressive symptoms, infant behaviour and maternal affective responsiveness to her infant. Of women who perceived that their infants were “difficult” and displaying proneness to distress, women who took a leave of absence from the workforce of less than 6 weeks showed less affective involvement and

sensitivity to their infant at 4 months than those taking longer workforce absence. Mothers reporting that their infants had easier, more predictable behaviour showed comparable levels of interaction with their infants to the whole sample, regardless of the duration of their absence from the paid workforce. They also found that women who reported elevated depressive symptoms were more likely to demonstrate less sensitive affective interaction with their infants if their leave was less than 6 weeks duration than women with elevated symptoms whose leave was of longer than 6 weeks duration.

These authors propose a direction to this observed association, concluding that a longer leave has a protective effect against the potential disruption to mother-infant interaction that occurs with maternal depression, as her development of a responsive relationship with her infant is not prematurely interrupted by the competing demands of paid work participation. Further, they argue that a rapid return to the paid workforce limits the time in which women can learn to meet infants' needs in a sensitive manner, particularly for women who experience their infants as prone to distress and highly reactive. Clark et al. suggest that a longer absence from the paid workforce contributes to women's ability to develop the competence and satisfaction that comes with sensitive, effective parenting and this in turn is protective against worse maternal mood. However, it is equally plausible that women with more unsettled infants seek a break from the constant demands of infant care by resuming employment sooner than those mothers whose infants are more immediately responsive to their care provision.

Hyde et al., (2004) assessed the infants in the WMLHP using the "Distress to Limitations" scale of the Infant Behaviour Questionnaire (Rothbart, 1981), a standardised assessment of how readily infants fuss and cry in response to normal daily activities such as waiting for food, being fed, being dressed and undressed and being held. They suggest that while numerous studies have examined the impact of parents' employment in dual-earner families on their children, few studies have investigated the effect of child temperament and behaviour on parents' employment satisfaction and ability to perform at their job. They hypothesised that difficult infant temperament would be associated with worse maternal rating of job quality, and

higher reported interference between their paid and unpaid work demands at 4 and 12 months postpartum. At four months, there was no effect of infant temperament on mothers' employment outcomes assessed on non-validated scales such as ratings of job rewards and concerns, and of the negative aspects of combining paid work and family responsibilities. At 12 months however, frequent reported infant distress was significantly correlated with mothers' reports of greater job and family concerns such as frequently feeling time pressure, and experiencing reduced pleasure in time spent with family. However, in multivariate analyses, the investigators found that this effect was mediated by women's reported depressive symptoms on the CES-D (Radloff, 1977) and on women's sense of parenting competence assessed using the Competence subscale of the Parenting Stress Index (Abidin, 1986), a standardised assessment of parent's perceived competence in fulfilling their parenting role. Difficult infant behaviour eroded women's sense of their own competence as a parent, and this in turn increased their reports of the negative aspects of combining their parenting with a paid job. Similarly, mothers of infants who were more readily distressed reported higher distress themselves, and this also predicted worse job satisfaction and job rewards.

These authors suggest that repeated experiences of feeling ineffectual and incompetent as a parent contributes to more maternal misery and distress overall, and this in turn makes it more difficult to manage the competing demands of paid work and infant care. This emerging evidence suggests that the relationship between infant behaviour, maternal employment participation and maternal mental health is complex, and warrants further elaboration in investigations of postpartum employment.

#### **4.3.7 Maternal Physical health**

The postpartum period is characterised by recovery from childbirth, breastfeeding, fatigue, and the constant daily care of a new infant. As discussed in section 2.5, maternal physical health problems are common and often persistent, with many women reporting symptoms throughout the first 12 months after birth. Several studies have investigated relationship between employment on mothers' physical health and well-being specifically in the postpartum period.

McGovern et al. (1997) (see Table 4.3) surveyed a random sample of 654 American women, all employed during pregnancy, and recruited through birth records in a single American state, at approximately 7 months postpartum. A high proportion of women reported physical symptoms since the birth, with 69% of the sample reporting health problems such as back pain, breast problems and joint pain, and a similar proportion reporting minor infectious illnesses. Most of the sample (95%) had resumed employment at the time of the survey, and details about the length of absence from the paid workforce were collected. Women who had 12 weeks of leave reported less fatigue and more vitality at 7 months on the Medical Outcomes Study assessment of health and well-being (Stewart et al., 1992) than women who took less than 12 weeks of leave. Higher vitality was also associated with reporting more sleep, higher levels of job satisfaction, and fewer requirements for physical exertion at the workplace. The retrospective assessment of leave duration and symptoms in this study however does not disentangle the direction of the association between fewer physical symptoms and longer maternity leave duration.

In a prospective study of mothers' health and employment factors, McGovern et al (2007) recruited 817 women from three maternity hospitals during the postnatal stay. Women were eligible for the study if they were employed prior to the birth, and planning to resume following birth. Interviews were conducted at recruitment, and at 5 and 11 weeks after birth. Health status was assessed by study-specific questions about postpartum physical symptoms, and the physical component summary subscale of the Short-Form 12 (SF-12) questionnaire (Ware et al., 1996). For all participants, of whom 50% were employed by 11 weeks, better postpartum health reported on the SF-12 physical subscale was associated with better general health prior to conception, assessed retrospectively, higher perception of control in job tasks and higher levels of emotional support from co-workers during pregnancy. Fewer physical symptoms were also reported by women who were partnered, and who had better pre-conception health. These findings suggest that there are aspects of employment, even during pregnancy that can promote better physical postpartum health, such as adequate autonomy and sufficient support from colleagues. The authors of this study suggest further research to elaborate which interventions might improve employed mothers

physical health and recovery from childbirth, and relieve the significant fatigue reported by one third of women in their sample at 11 weeks.

Evidence about the physical health outcomes of employed women, compared to women occupied in primary infant care, is still emerging. Little is known about whether employment in the first year following childbirth protects against adverse health outcomes, or whether the combination of increased unpaid workload, fatigue and recovery from birth with paid work compromises maternal physical health.

#### **4.3.8 Breastfeeding and maternal employment participation**

It is expected that maternal participation in the paid workforce in the first postpartum year commonly necessitates regular periods of separation from her infant, and it follows that this may interfere with women's capacity to offer breastmilk to their infant once this occurs. Whether this has implications for women's psychological well-being is poorly understood, although there is some suggestion in the literature that breastfeeding cessation and maternal depressive symptoms are related (see Chapter Two, section 2.3.2.4).

Internationally, evidence about the effect of maternal employment on breastfeeding initiation and duration has found that while intention to participate in employment does not affect breastfeeding initiation after birth (Hawkins, Griffiths, Dezateux, Law, & Millenium Cohort Study Group, 2007; Noble & ALSPAC Study Team, 2001), women who resume full-time employment are likely to have shorter breastfeeding duration than those who are not in the paid workforce (Carlson-Gielen, Faden, O'Campo, Brown, & Paige, 1991; Ryan, Zhou, & Arensberg, 2006; Taveras et al., 2003; Visness & Kennedy, 1997). Part-time employment, defined as less than 35 hours per week, seems to have little or no effect on breastfeeding duration, and is commonly thought to be a means through which women combine their employment with breastfeeding (Carlson-Gielen et al., 1991; Fein & Roe, 1998; Ryan et al., 2006). This evidence however is of limited relevance to the Australian context, where there is inadequate maternity leave provision, and a lower rate of workforce participation in mothers of dependent children than that observed in comparable industrialised countries (OECD, 2003).



Australian evidence about the relationship between maternal employment and breastfeeding duration has been slow to emerge. Studies investigating this relationship in the Australian context are presented in Table 4.7.

**Table 4.7 Australian studies of employment participation and breastfeeding (bf)**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Scott et al., 2006)	587 women recruited from 2 maternity hospitals at birth	Prospective investigation of risk factors for discontinuing full bf at 6 months, and no bf at 12 months. Data collected 6 weekly intervals for 12 months	Primary outcomes: 1. Full-bf* at 6 months 2. Any bf at 12 months	<ul style="list-style-type: none"> <li>• independent association between employment resumption before 6 months, and not full bf at 6 months</li> <li>• similar effect for employment resumption 6-12 months and any bf to 12 months</li> </ul>
(Forster et al., 2006)	764 women recruited from one public major maternity hospital, first baby	Cross-sectional investigation of factors associated with breastfeeding at 6 months postpartum	Primary outcome: breastfeeding at 6 months postpartum	<ul style="list-style-type: none"> <li>• Significant univariate association between employment participation at / before 6 months and not bf, but not retained when other risk factors adjusted for</li> </ul>
(Cooklin, Donath, & Amir, 2008)	Representative national cohort of infants (n=3697) from LSAC**, mean age 10 months, recruited via Medicare database	Cross-sectional survey investigating relationship between breastfeeding at 6 months postpartum, maternal employment participation, adjusting for maternal age, education, sex and smoking.	Primary outcome: breastfeeding at 6 months postpartum	<ul style="list-style-type: none"> <li>• Fewer employed than non-employed women bf at 6 months postpartum</li> <li>Not bf at 6 months associated with: <ul style="list-style-type: none"> <li>• full-time employment (OR=0.35)</li> <li>• part-time employment (OR=0.49)</li> <li>• casual employment (OR = 0.72)</li> </ul> </li> </ul>

\*Full-breastfeeding: breastfeeding as main source of nourishment, no other milks or solid foods

\*\*Longitudinal Study of Australian Children (Department of Family and Community Services, 2004)

All three studies demonstrated an association between employment participation and breastfeeding cessation prior to the recommended 6 months postpartum. Two of these studies reported that this association remained when other known risk factors for breastfeeding cessation – maternal age, education level and socio-economic status – were adjusted for in the analysis (Cooklin et al., 2008; Scott et al., 2006). Only Scott's study investigates prospectively the relationship between employment and breastfeeding cessation, suggesting that employment prior to 6 months is a risk factor

for not sustaining breastfeeding as the main source of nutritional nourishment (full-breastfeeding) for at least 6 months.

Using data from the *Longitudinal Study of Australian Children* infant cohort, Cooklin et al. (2008) found that any participation in employment – whether full-time, part-time or casual – prior to six months postpartum was associated with an increased likelihood of not breastfeeding at 6 months following birth. This is in contrast to American evidence that has reported similar rates of breastfeeding in women who have resumed employment, and those who are occupied in primary infant care (Carlson-Gielen et al., 1991; Fein & Roe, 1998; Ryan et al., 2006). The reason for this distinction is not known, however it is plausible that there is an absence of workplace support for Australian women to sustain breastfeeding once they have resumed employment after a period of absence following birth. Further investigation is needed to understand the barriers to breastfeeding women currently face when resuming employment following birth, and whether this is salient to their psychological well-being.

#### **4.4 UNPAID WORKLOAD AND MATERNAL POSTPARTUM WELL-BEING**

It is well established that women are responsible for a disproportionate amount of the unpaid domestic workload (Bittman, 1998, 2004; Craig, 2002). Emerging evidence has suggested that this is particularly so following the birth of a baby (Baxter et al., 2008; Gjerdingen & Center, 2005; Smith, 2007), when the burden of infant care and household work increases substantially.

Both Pina and Bengston (1993), and Glass and Fujimoto (1994) have demonstrated that perceived inequity between couples in the distribution of the unpaid workload across adult life is associated with heightened depressive symptoms in women. Several studies have assessed the impact of the increase in unpaid workload specifically in the postpartum period, either alone or in combination with employment, on women's mental health, and they are summarised in Table 4.8.

**Table 4.8 Studies investigating unpaid domestic labour and postpartum mental health**

Authors Date Country	Sample	Aims and Study Design	Measures	Main findings
(Gjerdingen & Chaloner, 1994b) USA	436 women, first baby, employed, recruited at hospital stay from two diverse community hospital sites.	Prospective study of postpartum changes in division of household labour, and women's changes in satisfaction. Data collected at birth, 1,3,6,9 and 12 months postpartum	SF-36 <sup>1</sup> global health item MHI <sup>2</sup>	<ul style="list-style-type: none"> <li>• More satisfaction with partner contribution to unpaid workload was significantly associated with more caring partner, better maternal mental health, and more infant care and housework performed by partners.</li> </ul>
(Kluwer, Heesink, & Van de Vliert, 1996) Netherlands	54 married couples expecting first infant, or with first infant under 12 months attending two health clinics. Recruited by clinic midwives.	Cross-sectional investigation of the division of unpaid labour, satisfaction and marital conflict across early parenthood	Study specific measures of conflict, satisfaction with household tasks	<ul style="list-style-type: none"> <li>• Women's dissatisfaction with household labour division predicted marital conflict. Partners' dissatisfaction did not.</li> <li>• Greater frequency conflict about unpaid work than paid work</li> </ul>
(Gjerdingen, 2000) USA	149 couples, expecting first baby, recruited from antenatal classes in two maternity hospitals, in second and third trimester of pregnancy. 46% response fraction	Compare expectant mothers' and fathers' anticipated changes in workload from pregnancy to 6 months postpartum	Study-specific measures of no. of hours unpaid labour, division and satisfaction with partner contribution	<ul style="list-style-type: none"> <li>• Both partners predicted a significant increase in total household tasks, but women up to 85% increase anticipated. Decrease in paid workload anticipated</li> <li>• Planned gender discrepancies exist even when couples encouraged in 'breakout' session to examine this and plan it.</li> </ul>
(Goldberg & Perry-Jenkins, 2004) USA	97 couples, both employed expecting first baby, lower-middle employment / income bracket recruited from antenatal classes in third trimester	Prospective investigation of relationship division of child care, household labour, perceived fairness to changes in women's well-being. Data collected in third trimester pregnancy and on employment resumption of mother (mean 15 weeks postpartum)	WdW <sup>3</sup> CCT-CCR <sup>4</sup> CES-D <sup>5</sup> STAI <sup>6</sup>	<ul style="list-style-type: none"> <li>• Division of labour in pregnancy, changes in division of tasks, and perceived fairness of household tasks had no impact on well-being.</li> <li>• Only part-time employment predicted increased distress, FTE and full-time infant care did not</li> <li>• For child-care factors, violated expectations about division of childcare associated with increased symptoms.</li> <li>• Subjective evaluations of fairness and satisfaction un-related to mood</li> </ul>

(Gjerdingen & Center, 2005)  USA	128 couples expecting first baby, recruited from antenatal classes in two maternity hospitals in second and third trimester of pregnancy	Prospective study of pre- to postpartum changes in time spent on employment and unpaid work, and to predict parents' satisfaction with housework division. Data collected at recruitment, and 6 months postpartum	SF-36 <sup>1</sup> physical and mental health global items	<ul style="list-style-type: none"> <li>• Women's total workload increased over birth, and women reported less satisfaction with sharing of domestic work</li> <li>• No relationship of mental health to reporting satisfaction</li> <li>• Women who were satisfied in pregnancy with division of labour, satisfied in relationship were more likely to report postpartum satisfaction with division of labour</li> </ul>
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1. SF-36 (Ware & Kosinski, 1994)
2. Mental health Inventory (Veit & Ware, 1983)
3. WDW Who does what (Atkinson & Huston, 1984)
4. Child care tasks – Child care responsibility (Barnett & Baruch, 1987)
5. Centre for Epidemiological Studies – Depression (Radloff, 1977)
6. State-Trait Anxiety Inventory (Spielberger et al., 1970)

Three studies have sought to investigate whether partnered women's perceived inequity or dissatisfaction with the distribution of the domestic workload would contribute to worse mental health outcomes. Gjerdingen and Chaloner (1994b) prospectively assessed mental health in a diverse sample of 436 women having a first baby. They reported that several factors were significantly associated with reporting more satisfaction with partners' household work for the first 12 months postpartum including better maternal mental health, and more perceived contribution from partner to housework and childcare. This association was observed by repeated cross-sectional analyses at each of the five postpartum data collection intervals so the direction of this effect is not confirmed. It is plausible that satisfaction with partners' practical support is associated with better mental health, in the same manner that more emotional support from an intimate partner is established as protective against adverse psychological outcomes (Boyce & Hickey, 2005; Kermode et al., 2000; Scottish Intercollegiate Guidelines Network, 2002).

Conversely, Goldberg et al. (2004) prospectively investigated the effect of perceived fairness, and expectations about the division of unpaid housework and infant care on women's postpartum mental health. Data were collected from a diverse sample of 97 American couples, expecting a first baby, in the third pregnancy trimester and when

mothers resumed employment, at a mean of 15 weeks postpartum. They found that neither greater perceived inequity in the division of household tasks from pregnancy to the postpartum, nor women's perception of the unfair distribution of tasks had measurable adverse effects on depression or anxiety symptoms. Symptoms were assessed using two standardised assessments of depression (CES-D) (Radloff, 1977) and anxiety (STAI) (Spielberger et al., 1970). This finding was supported by Gjerdingen and Center (2005), who collected data from a sample of 128 couples expecting their first baby, and followed them until 6 months postpartum. They reported that although women's total workload – including employment, housework and infant care – increased by 64% from pregnancy to 6 months postpartum, and women reported less satisfaction with their partners' contribution over this time, this had no relationship to physical or mental health and well-being assessed on the SF-36 (Ware & Kosinski, 1994).

Goldberg et al. (2004) found that of all the unpaid labour and employment factors included in their analyses (see Table 4.8), only participating in part-time employment (but not full-time employment) made an independent contribution to psychological distress. The authors suggest that women employed part-time, straddling both home and paid work, feel overwhelmed and ambivalent about their right to complain given that they are 'only' employed part-time. Goldberg et al. also note that part-time employment is often offered in less rewarding jobs, accompanied by low autonomy and less responsibility. Another interpretation is that women who are employed part-time might still be expected to perform a similar amount of unpaid work as those who are in full-time infant care, and that this might lead to increased symptoms, whereas women employed full-time might have the increased financial means to enlist additional paid assistance with the unpaid workload.

It may be that the relationship between unpaid labour, employment and women's mental health is mediated by other factors. For example, Kluwer et al. (1996), in a study of 54 Dutch couples who were expecting, or had recently had a first baby, reported that women's dissatisfaction with household labour was associated with increased marital conflict. Maternal mood was not assessed in this small, cross-

sectional study, but it is established that a partner providing limited emotional support contributes to worse maternal mood, and this finding suggests that inadequate practical support also contributes to poorer maternal well-being in the postpartum.

Few Australian studies have examined the relationship between maternal well-being and unpaid labour in the first postpartum year. The context in which postnatal employment decisions occur is one of a demanding household workload, combined with constant infant care. As Fisher (2009) notes, the care of a young infant is akin to occupation in a workplace that is demanding and constant, and yet not dignified with the descriptor of “work”. Rather, women who are in the unpaid workforce are colloquially described as “not working” or “having time off”. As the birth of an infant conveys an increased workload with concurrent adjustment, loss and change, it would be expected that there would be emotional sequelae (Fisher, 2009). Few studies have adequately conceptualised the effect of women’s unpaid workload on their mental health.

#### **4.5 CONCLUSION – THE PRESENT STUDY**

In the last half of the twentieth century, much research examining the relationship between mothers of dependent children, employment participation, and well-being during adulthood. However, relatively few studies have focussed on mothers of infants specifically. Early studies of employed mothers’ mental health were founded on role-based conceptualisations. These studies are somewhat limited in scope, based on prescribed, sexist notions of women’s natural role of spouse and mother, to which the supplementary occupation of employment was added, potentially incurring adverse mental health effects. This conceptualisation is not supported by the evidence, however, and it appears that employment participation can be associated with a range of benefits, excepting under less than optimal employment conditions.

Recent research has expanded on this, including investigating employment participation specifically in the postpartum period. This emerging evidence has suggested that a broad range of factors potentially support women’s capacity to participate in paid employment, and influence her psychological functioning and well-

being when combining paid employment with infant care in the first postpartum year. The biopsychosocial model of health poses that biological, psychological and structural circumstances influence health outcomes, and established international evidence has identified a range of social determinants influencing mental health in pregnancy and the postpartum period, including employment characteristics.

Structural and policy factors that are associated with better postpartum mental health for women include the provision of an adequate period of maternity leave that protects women's time out of the paid workforce, and provides them with job security over this period. For women employed in the first postpartum year, optimal employment conditions including performing reduced hours each week, some flexibility in scheduling their employment hours, and autonomy and satisfaction within their paid role are associated with better mental health outcomes, as is a preference for participation in the paid workforce. Several personal and family circumstances are also associated with less depression and anxiety symptoms in employed women, such as emotional and practical support from intimate partner, an infant who is readily settled and responds to maternal attempts at soothing, better maternal physical health and support to negotiate the combination of breastfeeding and employment.

Prospective studies have suggested that a broad range of factors are relevant to maternal psychological functioning including employment conditions. However, these studies have predominantly sampled from non-representative convenience samples, or from samples of socio-economically advantaged, employed, partnered women. The generalisability of these findings to women from a range of socio-economic positions, and the relative importance of socio-economic status to women's employment decisions and their psychological well-being has not been widely investigated in studies of postpartum women. Furthermore, the available evidence has emerged predominantly from the United States of America, and is of limited relevance within Australia's unique policy context where there is a statutory, but poorly accessed unpaid maternity leave provision, and no current universal paid maternity scheme.

Given that maternal ante- and postpartum mental health is governed by a range of factors including social circumstances, and that most Australian women are in the

paid workforce prior to the birth of their first infant (Baxter, 2005a), it is likely that employment is a relevant factor contributing to women's perinatal health and well-being. There is strong evidence that prior mood disturbance, inadequate social and partner support and concurrent adverse events contribute to worse mental health in the postpartum, and emerging evidence that unsettled infant behaviour, poor physical health and socio-economic disadvantage have similarly adverse outcomes. Less is known about the effect of employment decisions and maternal satisfaction with these decisions, employment conditions and access to maternity entitlements, on maternal psychological well-being.

Similarly, few Australian studies have investigated whether maternal separation anxiety, in the context of developing mother-infant attachment, is relevant to women's employment decisions. While research to date has described maternal socio-demographic characteristics associated with an increased likelihood of postpartum employment participation, as discussed in Chapter One, few studies of women's postpartum employment participation have included consideration of the mother-infant relationship. It is also not well understood whether the nature and quality of the mother-infant relationship, and maternal separation anxiety in the context of paid employment is a salient aspect of women's psychological functioning and well-being in the postpartum period.

The present study investigates the determinants of women's workforce participation in the postpartum period, and investigates a range of factors previously under-investigated in studies of maternal workforce participation, including maternal separation anxiety, maternal-to-infant emotional attachment, maternal preferences, amount of domestic workload and access to maternity-related entitlements. This study also investigates the relative contribution of maternal satisfaction with employment decisions and arrangements to maternal postpartum mood, adjusting for factors known to influence maternal mood outcomes in a contemporary cohort of Australian childbearing women employed during pregnancy with their first child.



# CHAPTER 5 MATERIALS AND METHODS

## 5.1 AIMS AND HYPOTHESES

The study had two aims. The first aim was to describe the social, structural and personal determinants of primiparous mothers' return to paid employment in the first year following childbirth. The second aim was to assess the relative contribution of employment-related variables to maternal well-being during pregnancy and in the first postpartum year, controlling for other known determinants of perinatal mood. There were three primary hypotheses for this study:

1. A range of personal, structural and social factors will contribute to mothers' paid employment participation in the first 10 months following childbirth, including access to maternity-related workplace entitlements, intentions and preferences, financial considerations, partner support with domestic workload, infant behaviour and feeding, access to non-parental childcare and maternal thoughts and feelings about separation from her infant.
2. Higher maternal satisfaction with employment and childcare arrangements (whether employed or not), less maternal separation anxiety and fulfilment of maternal employment preferences will contribute to better maternal psychological well-being.
3. Adverse employment-related conditions and entitlements will be associated with worse maternal psychological well-being.

## 5.2 STUDY DESIGN

A prospective, longitudinal, cohort design was used. Data were collected from participants at three time points: in the second or third trimester of pregnancy (Time 1), at three months (Time 2) and 10 months (Time 3) following childbirth.

## **5.3 SAMPLING**

### **5.3.1 Study Sites**

Australia has a two-tiered health system. The public health care system, funded and administered by the federal government provides basic health and hospital care at no cost to the patient. Alternatively, elective, self-funded private health insurance is available to cover hospital costs for those who are able to afford it, and provides access to doctors by choice, specialist services and hospitals of choice. Having private health insurance is considered to be an indicator of socio-economic advantage, as it is strongly related to higher income (Australian Bureau of Statistics, 2006a). Antenatal and intra-partum care is provided in both systems in Australia, and participants were recruited from one public and one private hospital in metropolitan Melbourne, Australia: the Royal Women's Hospital (RWH) and Frances Perry House (FPH).

The Royal Women's Hospital (RWH) is Australia's largest public, government-funded tertiary specialist women's hospital offering maternity, neonatal and gynaecological services. In 2005, 5663 babies were born at RWH. Forty-four percent of the RWH outpatients were overseas-born women, although 82% of outpatients have English as their first language (The Royal Women's Hospital, 2005). Frances Perry House is a specialist 88-bed private hospital offering a range of services including maternity services. Women booked to give birth at FPH receive their antenatal care from an obstetrician in private practice, normally offsite from the hospital, so for most, their only contact with the hospital prior to delivery is for antenatal classes, unless they require an antenatal hospital admission. It is estimated that 95% of nulliparous pregnant women booked to give birth at FPH attend antenatal classes (Humann, 2005).

These two hospital sites were chosen as together, they provide antenatal and obstetric services to a large number of women from a range of socio-economic positions.

### **5.3.2 Study Sample**

Participants in this study were employed nulliparous pregnant women of at least 20 weeks gestation, attending outpatient public midwife-clinics at RWH or booked to

give birth at FPH. The criterion for “employment” for this study was a paid work commitment of at least one day per week, until at least 20 weeks gestation. Exclusion criteria were women younger than 18 years of age, those employed for less than 1 day each week, and those without sufficient English to complete interview and questionnaires.

## **5.4 MATERIALS**

### **5.4.1 Structured Interview**

The structured pregnancy interview contained study specific, fixed-choice items assessing:

- Socio-demographic information: maternal and paternal age, country of birth, marital status, current occupation, highest education level attained
- Current gestation and estimated due date of baby’s birth
- Current employment: job status, hours per week, career salience, plans to cease before the birth
- Access to maternity entitlements, planned leave arrangements / duration
- Experience of any different treatment in pregnancy, as a result of the pregnancy revealed at the workplace
- Plans and intentions for postnatal employment, including intention for time of resumption and hours of employment
- Planned childcare arrangements
- Breastfeeding intention and intended duration

Open-ended items asked participants to describe their employers’, partners’ and mothers’ responses to their intended postnatal employment plans. Further information was also elicited from participants who reported that they had been treated differently in their job as a result of pregnancy.

## **5.4.2 Questionnaires**

Self-report questionnaires were administered at each phase of the study.

### **5.4.2.1 Questionnaire One**

The pregnancy questionnaire contained two standardised, self-report psychometric assessments of maternal well-being, the Edinburgh Postnatal Depression Scale (Cox et al., 1987) and the Profile of Mood States (McNair et al., 1971). A standardised assessment of the quality of mother-foetal emotional attachment was included, the Antenatal Attachment Questionnaire (Condon, 1993).

### **5.4.2.2 Questionnaire Two**

The second questionnaire was administered at three months following childbirth. Questionnaire Two included fixed-choice items assessing the following:

- Any current employment, number of hours per/week
- Full-time, part-time or casual employment status
- Timing of resumption of employment
- Whether employment has continued from pregnancy with the same employer and in the same position
- Reasons for resuming, or not resuming paid employment
- Type of leave arrangements and any paid and unpaid entitlements accessed
- Any current childcare arrangements, and their affordability, accessibility, and suitability
- Maternal satisfaction with current arrangements
- The determinants of current arrangements
- Pregnancy and childbirth outcomes and postnatal health
- Breastfeeding initiation and duration

- Amount of unpaid labour
- Partner support with unpaid labour

Open-ended items asked participants to describe their main reason(s) for resuming, or not resuming employment, any job changes that had occurred since birth, the suitability of their job combined with infant care, and any changes to infant feeding for paid work purposes. Additional space was provided at the end of the questionnaires for additional comments from participants. A maternal rating of infant behaviour was collected using a visual-analogue scale with poles labelled “Easy” and “Difficult”.

These items were followed by standardised measures, the Edinburgh Postnatal Depression Scale (Cox et al., 1987), the Profile of Mood States (McNair et al., 1971), the Intimate Bonds Measure (Wilhelm & Parker, 1988), the Postnatal Attachment Questionnaire (Condon & Corkindale, 1998) and the Maternal Separation Anxiety Scale (Hock et al., 1989).

#### **5.4.2.3 Questionnaire Three**

Questionnaire Three was administered at ten months following the birth. This questionnaire included all the items in Questionnaire Two, with the exception of the questions pertaining to pregnancy and childbirth. In addition, Questionnaire Three included fixed-choice items assessing:

- Concurrent stressful life events following childbirth
- Plans to resume employment subsequent to final questionnaire
- Availability of part-time employment and flexible working hours
- Quality of practical and emotional support available since childbirth

Participants who had indicated the presence of stressful life events since the birth were asked to describe the event(s) in an open-ended item.

These items were followed by repeat administration of the standardised assessments used in Questionnaire Two, with the exception of the Intimate Bonds Measure.

### **5.4.3 Standardised self-report measures**

#### **5.4.3.1 Measures of Maternal Well-being**

##### *Edinburgh Depression Scale*

The Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) is a 10-item self-report screening questionnaire designed to detect the presence of probable depression in community samples of women following childbirth. Since its development, the EPDS has been validated for use in Australian women (Boyce, Stubbs, & Todd, 1993), and been used widely in Australian studies (Buist et al., 2007; Matthey et al., 2000; Milgrom, Ericksen, Negri, & Gemmill, 2005). Five items of the scale address depressed mood, and two items address anxiety symptoms. Guilt, suicidal ideation and reduced functional capacity are assessed with one item each. Each item is scored between 0 and 3 (0= “no, not at all” and 3 = “yes, most of the time”). Higher scores on the total scale indicate the presence of more severe symptoms. In the original validation study for the EPDS, a score of greater than 12 was used to indicate probable depression. Using this threshold, the EPDS had a high demonstrated sensitivity (86%) and specificity (78%), and a positive predictive value of 73% when compared the Research Diagnostic Criteria of Spitzer et al., 1975 (Cox et al., 1987).

The EPDS has also been validated for use during pregnancy as a screening tool for probable depression (Murray & Cox, 1990) and in this context it is referred to as the Edinburgh Depression Scale (EDS). Using a cut-off of > 14, the EDS has a high sensitivity (100%) and specificity (96%) for the detection of major depression in pregnancy.

The EPDS takes only 5 minutes to complete and is acceptable to childbearing women in English-speaking countries (Cox et al., 1987). In this study, the EPDS was used as a repeated measure at all three assessment points. Much current research uses the validated cut-off of > 12 in Australian studies of women in the postpartum period

(Buist et al., 2005; Matthey et al., 2000; Milgrom et al., 2005; Miller et al., 2006; Thompson, Roberts, Currie, & Ellwood, 2000). However, the EPDS and EDS have also been used as continuous measures in research exploring perinatal mental distress. It has been argued that women who would not meet the clinical diagnosis of depression nonetheless “span a continuum from the euphoric to the very miserable” (Green, 1998), and that to impose a threshold based on a diagnosis of “caseness” falsely dichotomises the full range of maternal experience. The aim of the present study was not limited to identifying probable cases of clinical depression, but rather to investigate the spectrum of maternal perinatal well-being, and therefore the EPDS was used as a continuous measure.

### ***Profile of Mood States***

The Profile of Mood States (PoMS) is a 65 item mood adjective checklist, designed to assess variations in mood states in psychologically normal populations (McNair et al., 1971). The PoMS comprises of five negative and one positive affective state: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Fatigue-Inertia, Confusion-Bewilderment and Vigour-Activity. Participants rate their experience of each adjective on a 5-point scale (from 0 = “not at all” to 4 = “extremely”). All negative subscale scores are summed, and the Vigour-Activity subscale is then subtracted from the total score of the negative affect scales. A higher total PoMS score indicates more mood disturbance. The PoMS has high demonstrated internal consistency (90%) and a reported test-retest reliability of between 0.65 and 0.75. The PoMS takes between 5 and 10 minutes to complete and is considered to be an efficient and accurate method of assessing fluctuations in mood during pregnancy and the postnatal period (McNair et al., 1971; Smith et al., 1990; Tunis et al., 1990).

The PoMS was used as a repeated, continuous measure in this study, and where relevant total PoMS scores and individual subscale scores are presented. The normative data for the PoMS was derived from a cohort of college students (McNair et al., 1971) and is considered to be an inappropriate comparison with the study sample due to disparities in age, socioeconomic status and life-stage. Comparisons for

this study were made with existing pre- and postnatal Australian data (Hayes, 2001; Kermode et al., 2000).

#### **5.4.3.2 Maternal – Infant Factors**

##### ***Maternal Antenatal Attachment***

The Antenatal Attachment Questionnaire (AAQ) was designed to measure the construct of maternal-to-foetal attachment, defined by the authors as an ‘emotional tie’ or ‘psychological bond’ (Condon, 1993), and focuses on maternal feelings, attitudes and behaviour towards the growing baby in pregnancy. The AAQ was developed in a study of a representative sample of Australian expectant couples, of whom 77 were women. Following factor analysis, the AAQ yielded high internal consistency ( $\alpha=0.82$ ) with the inclusion of 19-items for the maternal scale. The maternal AAQ is comprised of two subscales. The first “Quality” subscale consists of 11 items assessing the quality of maternal affection and attachment towards the foetus such as “tenderness/irritation”, “emotional closeness/distance” and “clear/vague mental image of foetus”. The second “Time” subscale has 8 items assessing the frequency of maternal behaviours such as thinking about, talking to and palpating the unborn baby.

The AAQ takes approximately 5 minutes to complete. Participants indicate their response to each of the statements in the questionnaire by selecting one of five fixed-choice responses. The individual items are summed for a possible total global attachment score of 19-95, with higher scores indicating higher maternal-to-foetal attachment. The AAQ was used during pregnancy in this study.

##### ***Maternal Postnatal Attachment Questionnaire***

The Maternal Postnatal Attachment Questionnaire (PAQ) assesses the strength of the “emotional bond or tie of affection experienced by the parent towards the infant” (Condon & Corkindale, 1998). This scale is concerned with the subjective maternal experience of the attachment relationship, and it is designed for use in the first year following childbirth. The PAQ is a 19-item, self-report scale, and is used in each postnatal questionnaire. Each of the 19 items is scored on a two, four or five-point



scale yielding a possible total global attachment score of 19-95, with higher scores indicating higher maternal-to-infant attachment. Community comparison data are available for the total PAQ scores from the development study.

The development study of the PAQ was conducted on a sample of 202 Australian women who completed the PAQ at 4 weeks, 4 months and 8 months postnatally. The PAQ had high internal consistency across the three time points, yielding an alpha-coefficient of 0.78, 0.79 and 0.78 respectively. The PAQ was administered to a subgroup of 56 women at four months postpartum on two occasions after an interval of two weeks, and this revealed high test-retest reliability, with a correlation coefficient of 0.86 (Condon & Corkindale, 1998).

Three subscales identified in the development of the PAQ were “Quality of Attachment”, “Tolerance / Absence of Hostility” and “Pleasure in Interaction”. No norms are available for the three subscales of the PAQ, but one study has reported total PAQ scores and the three separate factor scores, and was used for comparison in this study (Feldstein, Hane, Morrison, & Huang, 2004) in addition to the development study (Condon & Corkindale, 1998).

### ***Maternal Separation Anxiety Scale***

Maternal separation anxiety is defined as “...an unpleasant emotional state that reflects concern and apprehension about leaving the child...and may be associated with feelings of sadness, guilt or worry” (Hock et al., 1988). The Maternal Separation Anxiety Scale (MSAS) is designed to assess maternal experience of separation anxiety about regular, short-term separation necessitated by maternal participation in employment (Hock et al., 1989). The MSAS was used in this study in both postnatal questionnaires.

The development study for the MSAS yielded three independent dimensions of maternal separation anxiety, assessed on a 35-item, self-report questionnaire that takes approximately 10 minutes to complete. The first dimension is “Maternal Separation Anxiety”, a 21-item assessment of the maternal experience of anxiety and guilt on separation from her infant, and her inherent belief in the primacy of maternal care.

The “Perception of Separation Effects” subscale consists of 7 items, and explores women’s perceptions about whether their infant will be affected by their absence, and whether having an alternative care-giver will benefit or harm their child. The final 7-item subscale, “Employment-Related Separation Concerns” assesses women’s attitudes to her employment, and her thoughts about the appropriateness of combining paid work with early parenting.

Individual scores for each item range from one to five (1= “strongly disagree” and 5 = “strongly agree”), with some items reverse-scored. Items for each subscale are then summed, and scores on the Maternal Separation Anxiety subscale (subscale one, 21 items) are divided by three. There are three separate subscale scores (range 7-35), with higher scores on each indicating greater separation anxiety. These three scores are summed to give a total MSAS score (21-105). In the validation study for the MSAS, over 600 American women completed the MSAS at eight months postpartum. Each MSAS subscale demonstrated high internal consistency, with alpha co-efficients of 0.90, 0.71 and 0.79 respectively. The test-retest reliability of the MSAS was assessed in a sub-sample of the 600 women, who completed the MSAS twice, with correlation coefficients of over 0.70 for each subscale (Hock et al., 1989).

#### **5.4.3.3 Quality of Intimate Relationship**

##### ***Intimate Bonds Measure***

The Intimate Bonds Measure (IBM) is a 24 item questionnaire assessing two independent dimensions within the intimate partner relationship – Care and Control. Participants are asked to rate their partner’s recent attitudes and behaviours on a four-point scale (from 0= “not at all” to 3= “very true”). The “Care” subscale of the IBM assesses consideration, affection, companionship and physical warmth and gentleness. The “Control” subscale measures dominance, criticism, intimidation and an authoritarian manner (Wilhelm & Parker, 1988). Higher scores on either subscale indicate the greater presence of that dimension within intimate partner relationships.

The validation study for the IBM, conducted on an Australian sample of 244 married men and women, demonstrated high internal consistency, with 0.94 and 0.89 for the

Care and Control subscales respectively. The IBM has demonstrated insensitivity to socio-demographic influences, and is minimally influenced by depressed mood state (Wilhelm & Parker, 1988). It is therefore not intended for use as a repeat measure. In this study, the IBM is administered at three months postpartum.

#### **5.4.3.4 Maternal satisfaction with current employment and childcare arrangements**

Maternal satisfaction with employment and childcare arrangements was assessed using a study-specific composite measure, the “Maternal Satisfaction Index” (MSI). The MSI comprised of seven semantic differential pairs of adjectives: “relaxed-tense”, “comfortable-uncomfortable”, “happy-sad”, “free to choose-no choice”, “certain-uncertain”, “satisfied-dissatisfied”, “confident-uneasy”. Participants indicated their own current rating of feelings about their current employment and childcare arrangements on a five-point scale for each of these pairs of adjectives. For each pair, a score of between one and five was entered, with one point indicating the negative outcome (uneasy, dissatisfied, tense), and five points for the most positive adjective (confident, happy). The score for the seven items was summed, giving a total score for the composite MSI, with a possible range 7-35, with higher scores indicating more maternal satisfaction with current arrangements. The MSI was completed by all participants, including those who were not employed or using any form of non-parental childcare, at both three and ten months postpartum.

## **5.5 PROCEDURES**

### **5.5.1 Recruitment of Participants**

Women receiving care in the public system (RWH) were recruited during routine antenatal visits. At FPH, recruitment took place during childbirth education classes.

#### **5.5.1.1 Recruitment in the public hospital**

Recruitment at RWH took place between October 2005 and January 2006. The senior obstetrician managing the midwife care teams was informed of the study and facilitated the investigator’s presence in the midwife clinics. Recruitment occurred in the waiting areas of the outpatients antenatal midwifery-led clinics. In order to ensure

that there was no inherent bias in the selection of participants the investigator attended different clinic sessions each week, and consecutively approached all women attending the antenatal clinics.

All women in the waiting area during recruitment sessions were approached by the investigator to ascertain whether they were currently employed, whether they were nulliparous and whether they were of at least 20 weeks gestation. This process also allowed the investigator to judge the level of potential participants' English usage. Eligible participants were then handed the RWH Plain Language Statement (Appendix A) and provided with an oral summary of the purposes and protocols of the study. Written consent on the standard RWH consent form (Appendix A) and names, addresses and telephone numbers were obtained from women willing participate in the study (Appendix B).

#### **5.5.1.2 Recruitment in the private hospital**

Recruitment at FPH took place during February and March, 2006. With assistance from the Manager of Childbirth Education, a flyer was prepared for distribution to all FPH childbirth educators, prior to recruitment in September 2005, informing them of the investigators intentions to attend a range of antenatal classes (Appendix C). The investigator attended a minimum of 4 childbirth education classes each week. After a brief introduction by the midwife to the class, the investigator explained the study purpose and protocols and invited women attending the class to participate. All women attending the class were handed the FPH PLS and consent form (see Appendix A) and were asked to complete a form indicating whether they were ineligible, not interested in participating or willing to participate (appendix D). Women indicating that they were willing to participate were asked to complete the remainder of the form, which sought written consent on the standard FPH form and names, addresses and contact telephone numbers on the study contact sheet (Appendix B).

### **5.5.2 Assessments at Time One - Pregnancy**

The pregnancy phase of the data collection involved a brief structured interview (Appendix E) and a written self-report questionnaire (Appendix F).

The initial structured interview was conducted in person at RWH, usually immediately following recruitment. When time did not permit completion of the structured interview women were asked to nominate a suitable time for telephone contact by the investigator. Participants from FPH were contacted by telephone within one week following their recruitment, at a time nominated by participants on their contact sheet for completion of the structured interview.

Following the interview, participants were either handed (RWH) or posted (FPH) a written self-report questionnaire and a reply-paid envelope to return the completed questionnaire to the investigator.

### **5.5.3 Assessments at Times Two and Three – postnatal follow-up**

Participants were contacted by telephone at both three (Time 2) and ten months (Time 3) following their specified date of expected delivery, to confirm their postal address and their willingness to continue participation. Questionnaires Two and Three (Appendix G) were sent once contact had been established. Participants were contacted through relative or friend telephone numbers given on their contact sheets, or via email if telephone contact was unable to be established.

For all three assessments, participants who had not returned questionnaires by one month after they had been posted were contacted by telephone. A reminder letter, including a second copy of the questionnaire, was sent if participants had not returned completed questionnaires after 6 weeks. All telephone contacts, management of posting and return of written materials were conducted by the researcher.

When data collection and preliminary analysis were complete, a two-page summary of main study findings was sent to participants who had indicated at recruitment that they would be happy to be contacted for this purpose.

### 5.5.4 Schedule of administration of Standardised Measures

A summary schedule of administration for the standardised assessments is presented in Table 5.1.

**Table 5.1 Standardised measures schedule of administration**

	Time one: Pregnancy	Time 2: 3 months after birth	Time 3: 10 months after birth
Edinburgh Depression Scale (Cox et al., 1987)	♦	♦	♦
Profile of Mood States (McNair et al., 1971)	♦	♦	♦
Maternal Antenatal Attachment (Condon, 1993)	♦		
Maternal Postnatal Attachment (Condon & Corkindale, 1998)		♦	♦
Maternal Separation Anxiety (Hock et al., 1989)		♦	♦
Intimate Bonds Measure (Wilhelm & Parker, 1988)		♦	

## 5.6 ETHICAL CONSIDERATIONS

The ethical considerations in this study related to voluntary participation, protection of participants' privacy and management of psychological distress if it was revealed in the interview or self-report questionnaires.

All participants were given a verbal explanation of the study as well as a written plain language statement (PLS) explaining the purposes and protocols of the study. The PLS complied with National Health and Medical Research Council's statement on guidelines for the conduct of ethical research involving humans (National Health and Medical Research Council, 1999). The PLS assured women that their participation was entirely voluntary, that they could withdraw from the study without explanation, and that any information given would be treated confidentially. Only pooled data would be published from this study, and no individually identifying information would be released. Participants were also informed that declining to participate would not adversely affect their antenatal or postnatal care. Participants signed a written consent form once they had been fully informed of the study and agreed to participate.

All data was collected and entered into password-protected computer files using a unique code number, not participants' names, and documents linking the code numbers to participants' details were stored separately to collected data. All completed questionnaires were stored in locked filing cabinets at the Centre for Women's Health, Gender and Society, University of Melbourne.

The project was judged to pose minimal risk to participants, the only inconvenience being the time involved in completing the interview and written questionnaires. Women were asked to indicate on the written consent form whether they consented to being contacted by the Supervisor of this project Associate Professor Jane Fisher outside of the study protocols should their responses to the study materials indicate extreme distress. Associate Professor Fisher is a clinical psychologist specialising in perinatal mental health, and was therefore able to contact participants by telephone to make appropriate suggestions to participants about referral and follow-up care if needed.

Approval was obtained from the Royal Women's Hospital (RWH) Research and Ethics Committees on 11<sup>th</sup> October, 2005 (project 04/07). The project was subsequently registered with the Human Research Ethics Committee, University of Melbourne (Project number 050823, 15/03/06). Frances Perry House (FPH) does not have an independent Ethics Committee, and accepts clearance from RWH. Written approval from Frances Perry House obtained on 2<sup>nd</sup> December 2005.

## **5.7 METHODS OF ANALYSIS**

There were two primary outcomes for the present study. The first, pertaining to the study aim investigating the determinants of maternal postpartum employment, was employment participation at ten months postpartum (binary outcome employment versus not employed). The primary outcome for the second study aim, investigating the relative contribution of satisfaction with employment arrangements to maternal well-being at ten months, was assessed by the two continuous standardised, self-report psychometric measures of maternal mood, the Edinburgh Postnatal Depression Scale, and the Profile of Mood States.

### **5.7.1 Sample Size Calculation**

The final sample size was calculated on the second primary outcome, continuous EPDS score at ten months postpartum, as this required a larger sample of participants than the first study outcome. ‘Maternal satisfaction’ with employment and childcare arrangements was measured by a 7-item semantic differential scale assessing current arrangements (see section 5.7.4).

It was estimated that 50% of mothers would be satisfied with their arrangements at ten months after birth, and 50% of mothers would be dissatisfied with their arrangements. To detect a mean difference of 3.0 in EPDS scores between groups, with 80% power at the 5% two-tail significance level, it is necessary to have 64 mothers in each group (128 in total) (Watson, 2003). In order to achieve a total sample of 128 participants at ten months postpartum, a total of 172 mothers were recruited to allow for attrition of 25% over the two follow-up periods.

### **5.7.2 Data management**

#### **5.7.2.1 Quantitative data**

All quantitative data were entered, coded and analysed using Statistical Package for the Social Sciences, Version 14.0 (SPSS Inc., 2005). Systematically collected responses to open-ended items in the structured interview and questionnaires were recorded verbatim, and coded *post hoc* according to distribution of the most common three, four or five responses.

#### **5.7.2.2 Qualitative data**

Qualitative responses and additional comments provided by participants in the structured interview were recorded verbatim, and were transcribed into a Microsoft Word document. Additional comments provided by participants, and responded to open-ended items were also transcribed into a separate document.



### **5.7.3 Coding and scoring**

#### **5.7.3.1 Responses to Structured Interview**

##### ***Socio-demographic information***

Participants' age, and the age of the baby's father in years was recorded. Marital status was entered as married, de-facto relationship or single status, and reduced to "married" versus "not married" (de facto / single) for comparison with existing perinatal data (Davey, Taylor, Oats, & Riley, 2008) and for entry into multivariate analyses. The number of weeks of pregnancy gestation was recorded, and the estimated due date of the baby's birth was entered into the participant information database so that follow-up questionnaires could be sent at accurate intervals. The infant's age was recorded in weeks at time two, and months at time three. The highest level of maternal and paternal education attained was recorded as up to year 10 or below, years 11 and 12, trade apprenticeship, certificate or Diploma, undergraduate degree or postgraduate degree. Maternal and paternal country of birth was recorded and entered as Australia, Europe, Asia, Oceania including New Zealand, USA and Canada, the Middle East and South Africa, and reduced to "Australian-born" versus "overseas born" for comparisons.

Women receiving antenatal care and booked to give birth at RWH were assumed to have no private health insurance, although a small number of women with private health insurance were booked by their private obstetrician to give birth at RWH. These women were coded as private patients in order to make accurate comparisons with existing Victorian birth data (Davey et al., 2008). All women attending a private hospital for antenatal and intrapartum care were considered to have private accommodation status in this study for accurate comparison with existing data (Davey et al., 2008).

##### ***Antenatal employment information***

Maternal and paternal occupational status was coded according to the Australian Standard Classification of Occupations (ASCO) (Australian Bureau of Statistics, 1997a) and ranked as ASCO 1 (Managers), ASCO 2 (Professionals), ASCO 3

(Associate Professionals), ASCO 4 (Tradespersons and related workers), ASCO 5 (Advanced clerical, sales and service workers), ASCO 6 (Intermediate clerical, sales and service workers), ASCO 7 (Intermediate production and transport workers), ASCO 8 (Elementary clerical, sales and service workers) and ASCO 9 (Labourers and related workers). For between-group comparisons in multivariate analyses, occupational status was reduced to “Professional / Managerial” (ASCO 1-3) versus “Service / Trade / Clerical” (ASCO 4-9).

Current employment status was coded as full-time ( $\geq 35$  hours / week), part-time ( $< 35$  hours / week) or casual (variable hours / week) and the number of hours employed each week was recorded.

The intended gestational age at which women planned to cease employment was recorded in weeks. Type of workplace leave accessed was recorded verbatim, and then coded, either alone or in combination, as unpaid maternity leave, paid maternity leave, annual leave, other leave (eg: long service leave), or informal arrangement with employer.

Career salience was assessed via two statements describing the relative importance of their job and satisfaction conveyed by participation in the paid workforce. Responses were recorded on a 5 point-scale, ranging from “strongly agree” to “strongly disagree”. These were then reduced to compare women who had “high” career salience (strongly/agree) to those with “low” career salience (mixed feelings, strongly/disagree).

The incidence of reported difficulty negotiating leave with their employer was recorded. Women who reported that they had been overlooked, disadvantaged or treated differently during the pregnancy, meeting the Human Rights and Equal Opportunities Commissions definition of pregnancy-related sexual discrimination (Human Rights and Equal Opportunity Commission, 1999), were recorded as having experienced discrimination (binary variable, yes or no). Qualitative descriptions of the forms of discrimination were recorded verbatim.

### ***Antenatal intention for postnatal employment***

Antenatal intention to resume employment in the postpartum period (yes or no) was recorded. For women who stated that they had plans to resume employment, the duration of intended time out of the paid workforce was recorded in weeks. Intended job status (full-time, part-time or casual), resumption with the same or different employer and number of intended hours of employment participation each week were recorded.

### ***Antenatal intention for non-parental childcare and infant feeding***

Number of hours of anticipated direct infant care was recorded in hours. Women's anticipated thoughts and feelings about leaving their infants was assessed on a 5-point scale ranging from 'very confident' to 'very worried'. Planned form of non-maternal care intended was recorded, either singly or in combination, as shared with partner, friend or relative, nanny or babysitter, centre-based long daycare, or other.

Antenatal plans for infant feeding were recorded and coded categorically as breastfeeding, formula feeding, or a combination of both. Intended duration of breastfeeding was recorded categorically as less than 6 months, more than six months, or undecided.

## **5.7.3.2 Responses to postnatal self-report questionnaires**

### ***Current arrangements and employment participation***

The employment status of women who were employed at either three or ten months was coded as full-time, part-time or casual, and their employment participation each week was recorded in hours. The infant's age at time of resumption was recorded in months. Participants' rating of their paid workload was coded as 'too much', 'about right' or 'too little'. Employed women were asked to indicate which item(s) of a series of items were of importance ("very / a little" important versus "not important") in their decisions to resume employment in both postnatal questionnaires. In an open-ended item, participants were asked to record their main reason for resuming their paid work, and these items were coded *post-hoc*, in accordance with the pattern of responses, as either "financial reasons", "job-related imperatives", "maternal

preference” or “other”, and for some between-group comparisons this was reduced further to “financial” versus “other reasons” for resumption. Resumption at the same or different job, and with the same employer was also recorded via fixed-choice items, as were any women who had resigned at or before the birth.

Preferences for paid employment above full-time infant care for all participants, regardless of current employment participation, were recorded on two 5-point scales, one each for full-time and part-time employment, versus infant care. Responses ranged from 5 = “Strongly agree” to 0 = “disagree”. These were reduced to a binary variable indicating expressed preference (strongly / agree) or no preference (somewhat / strongly / disagree) for employment. Women’s physical and emotional readiness to work at a job was assessed in two statements, and were coded as binary variables.

For non-employed women, important reasons (“very” or “a little” important versus “not important”) for current full-time infant care on a series of 7 study-specific items were recorded, and participants were asked to record in their own words their main reason for remaining in full-time infant care. These responses were coded *post-hoc* as either “preference”, “childcare concerns”, or “job-related factors” according to the pattern of responses presented.

### ***Use of non-parental childcare***

Women were asked to indicate in a fixed-choice item which forms, if any, of non-parental care they used, and whether this was for the purposes of employment. Type of childcare was coded as “parental only”, “friend or relative”, “paid babysitter/nanny”, or “centre-based care”. Amount of non-parental childcare used each week was recorded in hours, as was use of multiple care arrangements. Women indicated whether this care was affordable, accessible when they required it, and whether they were very, somewhat or not at all happy with this care for their infant.

### ***Pregnancy, birth and infant feeding***

Infants’ gestational age at birth was recorded in weeks. Infant weight was recorded in grams, and babies were coded as either male or female. Type of birth was recorded as

either “unassisted vaginal”, “assisted vaginal” or “caesarean birth”. Women indicated in a fixed-choice response whether they had any complications during the pregnancy, and to describe that complication in one open-ended item. These responses were coded as “bleeding”, “pre-eclampsia”, “placenta praevia”, “gestational diabetes” or “other”, in accord with the distribution of reported responses. Hospital admissions during pregnancy, and the number of days of admission were recorded. Reasons for admission were coded as “threatened labour”, “bleeding”, “pre-eclampsia”, “placenta praevia” or “other”.

Participants’ health since the birth was self-rated on a 5-point fixed choice item, the global measure of health from the SF-36 Questionnaire (JE Ware et al., 1993), and this was used as a continuous rating of maternal health with scores ranging from 0-5, higher scores indicating better self-rated physical health.

Infant behaviour was assessed by participants indicating a point on a 10 centimetre visual analogue scale, and the mark was measured and entered as a continuous score out of 10, with one indicating “easy infant behaviour” and a score of ten indicating “difficult”. Higher scores are suggestive of maternal perceptions of more difficult infant behaviour.

Breastfeeding initiation was recorded, and at three and ten months, women who had breastfed their infant in the past 24 hours were recorded as “breastfeeding”. For women who had breastfed but were no longer breastfeeding, the total number of weeks of breastfeeding was entered. Participants were asked to rate the degree to which their feeding method was determined by their paid work commitments and this was entered as either “not at all”, “somewhat” or “mostly determined”. Women who reported on a fixed-choice item that they had to change their infant feeding method in readiness for their job were asked to describe in an open-ended item the changes they made, and these were recorded.

#### ***Amount and division of unpaid domestic workload***

Participants were asked to record the number of hours they spent in a typical 24 hour period occupied in each of the following activities: baby care, domestic work, paid

work, sleeping and leisure time and these were recorded in hours. Participants' assessments of their partner's contribution to domestic work and infant care was recorded in a fixed-choice item and coded as either "too much", "exactly enough" or "too little", and their satisfaction with this amount was rated on a fixed choice item with 3 response categories, "Satisfied", "mixed feelings" and "dissatisfied". For several comparisons, this was reduced to "satisfied" versus "mixed feelings / dissatisfied".

### ***Stressful life events***

In the final questionnaire, participants were asked to indicate whether they had experienced any stressful life event(s) since the birth, and if so, at how many months after the birth. Participants described the nature of their stressful event(s) in an open-ended item, and the responses were grouped appropriately, according to the range of responses received.

### **5.7.3.3 Responses to standardised psychometric assessments**

Responses to all individual items on standardised questionnaire assessments were entered, and reverse-scored where necessary. Total scale scores, and where relevant, subscale scores were computed according to the scoring protocols developed by the authors of the scales. When a single item was missing from questionnaires, a value was imputed based on average responses for that participant.

Total scores on the standardised assessments are reported as continuous outcomes, including means and standard deviations, and mean differences are reported for between-group comparisons. Comparisons with existing normative or community data are made for all of the standardised assessments used in the study.

For the Maternal Separation Anxiety Scale (Hock et al., 1989), and the Postnatal Attachment Questionnaire (Condon & Corkindale, 1998), total scores (mean, sd) were reported. In order to characterise women reporting lower, moderate and higher relative separation anxiety and attachment to their infant, three equal groups were created ("lower", "medium" and "higher") for each of these two assessments at ten

months. Score ranges are reported, and between-group comparisons were performed on the basis of these categorical variables.

#### **5.7.4 Construction of composite measures**

Amount of available social support, and “Workplace Adversity” were assessed by combining individual items to construct composite variables. The construction and calculation of total scores for each of these two variables is described below.

##### **5.7.4.1 Workplace adversity**

The composite measure “Workplace Adversity” was based on information obtained during the structured pregnancy interview, and was defined as the presence of one or more of four adverse workplace conditions in pregnancy: no access to paid maternity leave, no access to unpaid maternity leave, experiencing pregnancy-related workplace discrimination and experiencing difficulty negotiating leave with employer. The presence or absence of each of these four conditions was entered separately as binary variables. Women experiencing one or more of these forms of adversity were coded as experiencing Workplace Adversity (1). Women without these experiences were coded as “no adversity” (0).

##### **5.7.4.2 Social support**

Social support was defined as the amount of both emotional and practical support received from partner, friends, family members and trusted others. In the final written questionnaire, study specific items assessed who of the following people provided practical support, and / or emotional support to participants: partner, mother, father, mother-in-law, father-in-law, sibling, friend or someone other. The type of support for received from each of these individuals was coded as no support (0), practical support (1), emotional support (2), or as both emotional and practical support (3). Emotional support was weighted more heavily than practical support, as current evidence suggests that emotional support from partner, friends and family is closely associated with maternal well-being, while evidence about the importance of practical assistance to maternal well-being is still emerging (Boyce & Hickey, 2005; Fisher et al., 2004; Milgrom et al., 2008). Total social support score was calculated as the sum of each

score (0-3) from each of the possible eight sources, giving a range of 0-24, with higher scores indicating more overall practical and emotional support available.

### **5.7.5 Statistical analysis**

There were two primary outcomes for the present study, maternal employment at ten months (defined as employed versus not employed), and maternal well-being at ten months, as assessed by the EPDS and the POMS.

#### **5.7.5.1 Analysis plan**

Quantitative data analysis was performed in three stages. Summary descriptive data was reported for all study variables, and where possible compared with existing Australian and international data.

Factors hypothesised to influence maternal employment participation at ten months were tested using univariate measures of association. For the second study outcome, maternal well-being, established risk factors for worse maternal mood and employment and childcare factors collected in this study were tested for significant univariate association with the outcome (EPDS and PoMS scores).

Finally, all study variables with a significant univariate association with the primary outcomes were included in multivariate analyses, along with potential confounding factors, to ascertain the relative importance of each of the hypothesised independent variables to each of the two primary outcomes.

#### **5.7.5.2 Descriptive data**

Continuous data was reported as the mean score, the standard deviation and the range of responses. Tests of normality were performed and those continuous variables that deviated significantly from the normal distribution were analysed using non-parametric methods, and median score and range were reported. The frequency of recorded responses given to categorical or ordinal variables was presented as proportions, in percentages.



### **5.7.5.3 Univariate measures of association**

For continuous variables, the mean difference between two groups was tested using the t-test, and the mean difference and 95% confidence interval for the differences were reported. Univariate association between continuous variables was tested using Pearson's test of correlation ( $r$  or  $\rho$  as the non-parametric alternative) and the correlation co-efficient and 95% confidence interval, were reported. Between-group differences in categorical variables were tested using the Chi-square test, and the chi-square value was reported. Statistical significance was set at a p-value of 0.05, or less.

One way repeated-measures analyses of variance were conducted, using the dependent variables of EPDS and PoMS scores, to ascertain any significant variations in women's mood across the three study intervals. Mean scores, and the overall effect of time on the repeated assessments is reported by the p-value for the variation ratio,  $F(df)$ .

One-way between-groups analyses of variance were performed for continuous variables (IBM scores, EPDS and PoMS scores, AAQ scores) thought to be of relevance to women's attachment style (lower, medium and higher PAQ scores), and maternal separation anxiety (lower, medium and higher MSAS scores). Results of these are reported as mean scores for the continuous dependent variables, and  $F(df)$  with the corresponding p-value. *Post Hoc* comparisons were performed (Tukey's HSD test) to identify significant differences in mean scores between the three groups.

### **5.7.5.4 Multivariate analyses**

Two multivariate models were constructed to address each of the study aims.

#### ***Factors associated with women's postpartum employment***

A binary logistic regression model was constructed to investigate factors associated with the dichotomous outcome of maternal employment at ten months.

Of all the study variables collected at the three study intervals, those that demonstrated a significant univariate association with maternal employment status at ten months were entered simultaneously into the regression model. Maternal age,

access to paid maternity leave, educational attainment and occupational status, coded as described in Section 5.7.3 above, were also included as potential confounding factors, as they have demonstrated an association with maternal postnatal employment status in previous studies.

For the purposes of this analysis, continuous variables were dichotomised and entered into the regression in binary form. Maternal age was reduced to a binary variable “ < 30 years” (n=27) and “ ≥ 30 years” (n=89). Maternal Separation Anxiety Scale (MSAS) scores, and mother-infant attachment (PAQ scores) were categorised into 3 equal sized groups, (high, medium and lower) and each of these variables was entered into the model in binary form (“higher” versus “medium/lower”). Participants with “higher” scores provided the reference category for comparison with those reporting “medium/lower” MSAS and PAQ scores as in this sample, higher MSAS and PAW scores were associated with optimal psychological functioning. Three month MSAS scores, although significantly associated with ten month employment participation, were excluded from this regression analysis because of the strong correlation between three and ten months MSAS scores ( $r = 0.72$ ,  $p < 0.001$ ).

All independent variables were entered into the model simultaneously. Variables that were not significantly associated with employment in this initial regression model were removed, and the analysis was repeated with remaining variables to seek the model of best fit. Regression co-efficients (non-standardised, B) are presented, as well as adjusted odds ratios (OR), including a 95% confidence interval, and p-values. The significance of the total model is reported as Chi Square, with corresponding p-value.

#### ***Association of Maternal Satisfaction (MSI) with employment and childcare arrangements to maternal well-being***

Standard linear regression was performed separately on the EPDS and PoMS outcomes assessed at all three timepoints. Linear regressions on the two primary maternal well-being outcomes were also performed for employed and non-employed women separately at ten months after birth. All demographic, psychosocial and employment variables (categorical and continuous) that had demonstrated significant association with maternal well-being were entered simultaneously in the linear

regression models, as were factors with an established association with maternal well-being. The assessment of maternal satisfaction with employment arrangements, the Maternal Satisfaction Index ten months score, was included in all linear regression models as the purpose of the study was to understand the relative contribution of this to maternal well-being when all other influences on maternal mood were adjusted for. Variables that had been recorded at earlier study intervals, but associated with well-being at ten months, were included in the regression model.

When two independent variables co-varied significantly with the primary study outcome (EPDS and PoMS), the variable with the strongest association with the outcome was selected. For example, it was expected that EPDS scores would be significantly correlated at each time point. Associations between the pregnancy and three month EPDS score with the ten month EPDS score were tested, and the score with the stronger correlation, the three month EPDS assessment, was included in the linear regression. No two independent variables included in the final models had an association of  $r = 0.70$  or greater with the dependent variable, to minimise confounding on the basis of multi-collinearity.

Standardised ( $\beta$ ), (95% confidence interval), and non-standardised (B) regression coefficients for the results of the linear regression are reported with p-values. The variability in the outcome detected by each linear regression model is reported as Nagelkerke's R-squared estimate, and the significance of the total model is given as a p-value. Visual inspection of the residual scatterplots and the normal probability plots for each linear regression were conducted to assess the assumption of normality of the models, and these suggested no major deviations from normality. There were no significant outliers in any of the independent variables.

### **5.7.6 Qualitative data analysis**

Responses to open-ended items were collated against the relevant questionnaire item (for example "breastfeeding changes", "job suitability" etc). Responses were then classified into themes for that item, according to the most common two, three or four reported responses. Where relevant, these themes were assigned a code and also treated as quantitative responses. A selection of quotes from each theme is presented

against the relevant questionnaire item throughout the results, to illustrate the most common responses, and to aid in the interpretation of qualitative data.

# CHAPTER 6 RESULTS

## 6.1 SAMPLE RECRUITMENT AND RETENTION

Pregnant women were approached in the third trimester of pregnancy and asked to participate in this study. Those who accepted the invitation were interviewed at the time when they agreed, if time permitted, or by telephone within a few days. Subsequently participants completed postal questionnaires at three time points; in late pregnancy (T1) and three (T2) and ten (T3) months after the birth.

Consecutive cohorts of women receiving antenatal care in public outpatient clinics or attending antenatal classes at a private hospital were invited to participate in the study during antenatal clinic visits and antenatal classes respectively. Recruiting occurred in the public Royal Women's Hospital (RWH) antenatal clinics between October 2005 and January 2006 and in the private Frances Perry House (FPH) antenatal classes between February and April, 2006.

Four hundred and ninety seven women were approached for the study and the investigator ascertained whether they were pregnant with a first baby, over eighteen years of age, currently employed and had sufficient English to complete study materials. Two-hundred and five women met the eligibility criteria. Of these, 171 women (83%) agreed to take part and signed the consent form. Subsequent to giving consent to participation in the study, two participants experienced stillbirth; one woman completed the interview, but was deemed ineligible because her English proficiency was not sufficient for the written questionnaire; and two women later withdrew their consent and requested that all information previously given not be included in the study. A total of 166 (81%) participants provided some pregnancy data. Table 6.1 displays the sample recruitment and retention for the three data collection points, compared by recruitment site.

**Table 6.1 Recruitment and retention at each time point (T), compared by recruitment site**

	Total		RWH**		FPH**		P-Value
	N	%	N	%	N	%	
Eligible	205		120		85		
Consented to participate	171/205	83	103/120	86	68/85	80	NS
Pregnancy interview (T1)	166*/205	81	98/103	95	68/68	100	NS
Pregnancy questionnaire (T1)	145/166	87	82/98	84	63/68	93	NS
3 month questionnaire (T2)	138/166	83	71/98	72	67/68	99	<0.001
10 month questionnaire (T3)	129/166	78	73/98	74	56/68	82	NS

\* 171 minus the 5 participants withdrawn as described above (all from RWH)

\*\* RWH: Royal Women's Hospital (public); FPH Frances Perry House (private)

Of the 166 participants who completed the initial interview, 21 women did not return the T1 questionnaire. Complete T1 data were provided by 145/166 (87%) of participants. There were no significant differences in recruitment or retention between the two recruitment sites except at the three months postpartum (T2) data collection point when fewer public than private patients returned the postal questionnaire. A similar proportion of public and private patients returned the final questionnaire at ten months postpartum.

The pregnancy interview for the total sample occurred at a mean (sd) gestational age of 29.4 (4.9) weeks. Due to the different recruitment method at each site, pregnancy data were collected slightly later in pregnancy from privately insured patients attending FPH antenatal classes than from public patients (31.7 weeks gestation versus 27.9 weeks, mean difference (95% CI) = -3.8 (-5.0, -2.5),  $p < 0.001$ ), but this difference, although significant, is not expected to influence any of the primary study outcomes. The T2 questionnaires were returned at a mean (sd) of 14.2 (3.4) weeks postpartum. Most participants (107/138, 78%) completed their second questionnaire between 10 and 14 weeks postpartum, the remainder completed it between 15 and 20 weeks (23/138, 18%), or between 20 and 30 weeks (8/138, 4%) after the birth. T3 questionnaires were returned at a mean (sd) of 10.4(0.8) months postpartum. Most completed third questionnaires were returned between 9 and 11 months postpartum (117/129, 91%), with the remainder returned at 12 (8/129, 6%) or 13 (4/129, 3%)

months after the birth. There were no significant differences in the timing of returning the questionnaires at T2 and T3 between participants recruited at RWH or FPH.

## **6.2 CHARACTERISTICS OF STUDY SAMPLE**

Demographic characteristics of participants were obtained during the pregnancy interview which was conducted in person at recruitment when time permitted, or by telephone within a few days following recruitment. Characteristics of the study sample are compared with available published data describing Australian parturient women or women of comparable age and where possible, the sample is compared with primiparous women. National data describing women's economic, social and employment circumstances is available from the Australian Bureau of Statistics (ABS), Australia's national government body responsible for the collection and publication of the Census and other population data. Information about all Victorian births is published annually by the Victorian Perinatal Data Collection Unit (PDCU). This unit, established in 1982, is a population based surveillance system which collects information about all births that occur in Victoria of 20 weeks gestation or more via a 100-item form submitted to PDCU by the hospital, birth centre or private midwife attending a home birth. The data collection form records maternal characteristics, obstetric conditions, procedures, obstetric outcomes and neonatal morbidity and birth defects (Davey, Taylor, Oats, & Riley, 2008). The present study sample is compared with data about all Victorian births in 2006, the year in which the majority of infants in this study were born.

The mean (sd) age of participants was 31.3 (4.9) years, and ranged from 19 years to 46 years. This was significantly older than all Victorian primiparous women who gave birth in 2006 (31.3 years versus 29.1 years mean difference (95% CI) = 1.9 years (1.1, 2.7),  $p < 0.001$ ) (Davey et al., 2008). In all but one case, the fathers' age was also reported. Fathers' age ranged from 19 to 52 years, with a mean (sd) age of 32.8 (5.7) years. The marital status of study participants is presented in Table 6.2.

**Table 6.2 Marital status of participants**

	Study Sample	Vic mothers 2006*	Comparison
	N(%)	N(%)	$\chi^2_1 = 10.8,$ $p=0.005$
<b>Married</b>	113(68)	48406(71)	
<b>De Facto</b>	37(22)	10734(15)	
<b>Un-partnered</b>	16(10)	9104(14)	

\*(Davey et al., 2008)

Parity-specific comparative data are not available for marital status. However, mothers in the study sample were less likely to be married than all Victorian women giving birth in 2006 (Davey et al., 2008), but more likely to be in a de facto relationship.

Seventy two per cent of participants were Australian born (119/166), a similar proportion to that of all Victorian women who gave birth in 2006 (Davey et al., 2008). Of the remainder, 15 (9%) were born in Europe; 12 (7%) in Asia; 11(7%) in Oceania including New Zealand; 4(2%) in the USA and Canada; 3 (2%) in the Middle East and 2 (1%) in South Africa. Sixty eight per cent of fathers (117/165) were born in Australia, and of the remainder, 17 (10%) were born in Europe; 15 (9%) in Asia; 9 (5%) in Oceania and New Zealand; 4 (2%) in the Middle East; and one in each of Canada, the United States of America and South Africa respectively.

The highest education level achieved by participants was compared to ABS data describing all Australian women aged 25-34 collected in the 2006 Census (Australian Bureau of Statistics, 2007). The highest educational qualification attained by study participants and their partners is displayed in Table 6.3.

**Table 6.3 Highest educational qualification of study sample**

Highest education level attained	Participants N(%)	Partners N(%)
<b>Some secondary school</b>	12(7)	11(7)
<b>Completed secondary school</b>	24(15)	36(22)
<b>Post secondary / Trade Training</b>	23(14)	16(10)
<b>Undergraduate Degree</b>	65(39)	57(36)
<b>Postgraduate Degree</b>	42(25)	41(25)



Compared to all Australian women aged 25-34 years (Australian Bureau of Statistics, 2007), participants were more than twice as likely to have a University degree (64% compared with 32%,  $\chi^2_1 = 86.8$ ,  $p < 0.001$ ). Participants in the study were all employed, and high educational attainment is associated with employment participation in pregnancy and after birth in Australian women (Baxter, 2005a, 2005b). The higher educational attainment of the present sample is commensurate with that likely to be found in Australian community samples of employed women. There are no more specific comparative data available.

Maternal occupational status was classified according to the ABS Australian Standard Classification of Occupations (ASCO) (Australian Bureau of Statistics, 2006b), and the proportion of women in each occupational classification is displayed in Table 6.4. Compared to all Australian women aged 15-65 (Australian Bureau of Statistics, 2004), participants were more likely to be employed in higher status occupations, denoted by ASCO classifications 1-3.

**Table 6.4 Occupational status of participants**

	<b>Participants (N=166)</b>	<b>Employed Aust women, 15-65 yrs**</b>	<b>Comparison</b>
<b>Occupation (ASCO Classification)</b>	<b>N(%)</b>	<b>%</b>	$\chi^2_7 = 86.8^*$ , $P < 0.001$
<b>Managers and Administrators (1)</b>	18 (11)	4	
<b>Professionals (2)</b>	71 (43)	21	
<b>Associate Professionals (3)</b>	23 (13)	11	
<b>Tradespersons and related workers(4)</b>	3 (2)	3	
<b>Advanced clerical and service workers (5)</b>	20 (12)	9	
<b>Intermediate clerical, sales and service workers (6)</b>	22 (13)	27	
<b>Intermediate production and transport workers (7)</b>	-	2	
<b>Elementary clerical, sales and service workers (8)</b>	6 (4)	15	
<b>Labourers and related workers (9)</b>	3 (2)	8	

\*Chi-square performed on eight of the nine ASCO categories, as no participants were classified as ASCO 8, so  $df = 7$ .

\*\* (Australian Bureau of Statistics, 2004)

Forty-two per cent (70/166) of women in the study had private health insurance, including two women who were privately insured yet booked for delivery in the public hospital RWH. This was a similar proportion to all Victorian women giving

birth in 2006 (36%,  $\chi^2_1 = 2.46$ , NS). In Australia, having private health insurance is strongly related to having higher income (Australian Bureau of Statistics, 2006a), and private health insurance is often used as a proxy measure for socio-economic status in studies of childbearing women (Kermode et al., 2000). Table 6.5 compares the educational attainment and occupational status of participants according to health insurance status and these results confirm that having private health insurance is an accurate measure of socio-economic advantage.

**Table 6.5 Comparison of educational attainment and occupational status of participants by health insurance status**

	<b>Privately insured participants (N=70)</b>	<b>Uninsured participants (N=96)</b>	<b>P-Value</b>
<b>University Education attained, N(%)</b>	58(83)	49(51)	<0.001
<b>Managerial, Associate/Professional Occupation, N(%)</b>	64(91)	48(50)	<0.001

In broad terms, participants in the study represent a diverse sample of employed women who are comparable to all childbearing women in Victoria in terms of age, marital status, insurance status and country of birth. By nature of the research aims, the sample was all employed, and therefore likely to be more highly educated than non-employed women. There are no accurate comparative socio-demographic data available for employed women specifically, and some of the differences noted between population data and the study sample can be explained by the recruitment of employed women only in the study. However, as participants were recruited consecutively from two major maternity hospitals providing care to a diverse group of pregnant women it is likely that they are representative of employed, nulliparous pregnant Australian women.

### **6.2.1 Comparison of Participants by Attrition**

Demographic characteristics of women who completed the interview and all three written questionnaires were compared with those of women who did not complete all parts. Of 166 participants, 118 (71%) provided complete data, and the remainder

(48/166, 29%) completed the interview but did not return one, two or any of the three postal questionnaires. These two groups are compared in Table 6.6. Women who provided complete data were significantly older than women who did not complete all study materials, although a similar proportion were married, privately insured and born in Australia. There were no differences in educational attainment between women providing complete and incomplete data, yet women who completed all study materials were more likely to be employed in a managerial, professional or associate-professional role, than women who only partially completed study materials. It is possible that the employment conditions and entitlements reported in this study are more representative of women employed in higher status occupations. As such they are likely to be an under-estimate of the poor employment conditions experienced by women employed in low status, poorly remunerated, less-skilled occupations, rather than an overestimate.

**Table 6.6 Characteristics of participants compared by completion of study materials**

	<b>Completed all study materials (N=118)</b>	<b>Did not complete all study materials (N=48)</b>	<b>P-value</b>
<b>Age mean (sd) years</b>	32.0	29.7	0.008
<b>Married, n (%)</b>	83 (70)	29 (60)	NS
<b>Privately insured, n (%)</b>	56 (47)	16 (33)	NS
<b>Australian born n (%)</b>	88(75)	31(65)	NS
<b>Occupation ASCO 1-3*</b>	87(74)	27(56)	0.03
<b>Obtained University Degree</b>	80(68)	29(60)	NS

\*ASCO 1-3 includes Managers, Professionals and Associate Professionals

### **6.3 EMPLOYMENT AND LEAVE ENTITLEMENTS**

At the T1 interview, women were asked to provide information about their current employment, access to maternity-related workplace entitlements, experience of pregnancy-related sexual discrimination, and any intentions or plans for employment participation following the birth. In T2 and T3 written questionnaires, women completed a series of structured items about any current employment participation including hours per week, job status, job changes since the birth, flexible arrangements requested and accessed, and length of absence from the paid workforce.

### **6.3.1 Employment during pregnancy and planned leave arrangements**

Employment characteristics, number of hours employed in pregnancy, leave entitlements and planned duration of absence from the paid workforce, collected in the structured interview, are described below.

#### **6.3.1.1 Job characteristics in pregnancy**

The majority of participants (124/166, 75%) were employed on a full-time basis during pregnancy, defined as greater than 35 hours of employment each week, which is a similar proportion to the estimated 80% of all Australian women employed full-time prior to a first birth (Baxter, 2005a, 2005b). Seventeen per cent (28/166) were employed on a permanent part-time basis of fewer than 35 hours per week, and the remainder (14/166, 8%) were employed on a casual basis throughout the pregnancy. The mean (sd) hours of employment per week performed by all participants during pregnancy was 37.9 (10.4) hours. Very few participants were self-employed (8/166, 5%). The mean (sd) gestational age at which participants intended to cease their paid employment prior to the birth was 34 (3.7) weeks, range 21-40 weeks.

Forty-nine per cent (82/166) of women reported in pregnancy that they planned to resume employment in the first postpartum year, 28% (47/166) planned to resume at or beyond twelve months, and 23% (37/166) were undecided. Fourteen women (8%) intended to resign prior to the birth.

When interviewed in pregnancy, a similar proportion of women reported high career salience, (strongly) agreeing (84/166, 51%) that “my life would not be complete without my job or career” as those reporting that they had either mixed feelings, or (strongly) disagreed with the statement (82/166, 49%). Most women agreed or strongly agreed that their “job or career brings me personal satisfaction” (136/166, 82%).

#### **6.3.1.2 Access to maternity leave entitlements**

Access to maternity leave entitlements reported by the study sample is compared with those reported in other studies, and shown in Table 6.7.

**Table 6.7 Comparison of access to maternity leave entitlements between study sample and Australian data**

<b>Entitlement</b>	<b>Study Sample N=166</b>	<b>Comparison Sample 1* N=1705</b>	<b>P-Value</b>	<b>Comparison Sample 2* N=299,000</b>	<b>P-Value</b>
<b>Paid Maternity Leave, n (%)</b>	76 (46)	784 (46)	NS	101,000 (34)	0.001
<b>Unpaid Maternity Leave</b>	99 (60)	1159 (68)	0.03	155,000 (52)	0.04

\* Parental Leave in Australia Survey (PLAS)(Whitehouse et al., 2006c)

\*\*Pregnancy and Employment Transitions Australia (PaETS) (Australian Bureau of Statistics, 2006d)

On all but one comparison, the study sample had different rates of access to maternity leave from those reported in other Australian studies. However, this is likely to be due to the difficulty of ascertaining an accurate comparison group, rather than representative inadequacy of the study sample.

The study sample is compared in Table 6.7 with a sub-sample of PLAS mothers (comparison sample 1) who have been confirmed as eligible for maternity leave (N=1705) by the study investigators on the criteria that they have worked for the same employer for more than 12 continuous months. This provides a more accurate comparison to study participants who, because they are having a first baby, are also more likely to have been employed continuously with the same employer for 12 months, than multiparous women who have interrupted their employment due to childbearing. Eligibility for maternity leave was not ascertained in the present study. Access to paid leave is similar for the study sample and the PLAS comparison, although mothers in the study have significantly less access to unpaid maternity leave than that reported in the PLAS. Respondents in the PLAS survey were of higher socio-economic status than all Australian women, and this may explain the higher rates of unpaid maternity leave reported.

Employed primiparous women such as the study sample are more likely than multiparous women to have been continuously employed prior to their pregnancy, and are therefore more likely to have greater access to maternity entitlements. As the PaETS sample (comparison sample 2 in the above Table 6.7) includes employed multiparous mothers (N=299,000) it is likely that a smaller proportion of that sample

were eligible for maternity entitlements that require 12 months of continuous employment with the same employer.

Consistent with available Australian evidence (Whitehouse et al., 2006c) there was a complex pattern of multiple leave arrangements used by women in the present study to cover their time away from the workforce following the birth, presented in Table 6.8.

**Table 6.8 Leave arrangements accessed to cover postnatal leave**

Type of leave arrangement	N = 166	%
<b>Paid maternity leave only</b>	5	3
<b>Unpaid maternity leave only</b>	32	19
<b>Paid and unpaid maternity leave combined</b>	51	31
<b>Annual leave only</b>	5	3
<b>Annual and unpaid maternity leave combined</b>	7	4
<b>Annual and paid maternity leave combined</b>	1	<1
<b>Paid maternity leave, unpaid maternity leave and annual leave combined</b>	17	10
<b>Planning to resign at or after birth</b>	17	10
<b>Informal arrangement with employer (unpaid)</b>	20	12
<b>Other leave (eg: long service leave)</b>	11	7

One third of the sample (34%, 57/166) had no paid or unpaid maternity leave entitlements. Over half of the sample (89/166, 54%) was unable to access paid maternity leave, and instead used other forms of paid leave such as accrued annual leave. The mean (sd) duration of annual leave used by women was 4.65 (3.5) weeks, range 1-12 weeks.

Previous studies have shown that women with higher socio-economic status are more likely to access maternity-related workplace entitlements (Australian Bureau of Statistics, 2006d; Baird et al., 2002; M. Gray & Tudball, 2002b). Maternity entitlements are compared by occupational classification in Table 6.9.

**Table 6.9 Comparison of maternity entitlements by ASCO classification**

Entitlement	Total Sample N=166	ASCO 1-3* N=111	ASCO 4-9* N=56	P-Value
Access to <i>paid</i> maternity leave, n(%)	76 (46)	62 (56)	14 (25)	<0.005
Weeks of <i>paid</i> maternity leave, m(sd)	10.2 (4.5)	10.1	11.0	NS
Access to <i>unpaid</i> maternity leave, n(%)	99 (60)	72(65)	27(50)	NS
Weeks of <i>unpaid</i> maternity leave, m(sd)	33.2 (14.8)	15.0	14.1	NS

\*ASCO 1-3 includes Managers, Professionals and Associate Professionals

\*\*ASCO 4-9 includes Service, Sales, Clerical and Trade occupations

Women employed in professional and managerial occupations were significantly more likely to access paid maternity leave than women employed in clerical, sales or service roles, but no difference was observed for unpaid maternity leave entitlements. There were no significant differences in the length of maternity entitlements between occupational classifications.

### 6.3.1.3 Women’s experiences of negotiating maternity leave

All women were invited to provide comments about their experiences of negotiating absence from their paid work from their employer. Most participants (113/166, 69%) did not elaborate, and reported that their employer was “fine”, “good” or “okay” while they were negotiating their arrangements. One third of women (53/166) elaborated on this and comments were recorded verbatim. Over half (28/53) of the comments indicated that women were readily able to organise their upcoming leave with their employer during pregnancy and that their employer was flexible and supportive of their need for an absence following the birth, for example:

They were really great; they gave me a new job even though they knew I was pregnant at the time. (Laboratory assistant, 25 years)

They’re helpful and nice, they’ve had previous pregnant women at work. They’re OK to allow me to go back part time. (Manager, 34 years)

They’re very supportive; I’m surprised as it is a new job for me. They’re excited! (Sales Manager, 31 years)

They've been really flexible, they will hold my job open, and I can extend my leave after three months if I want. They've been happy to discuss this with me. (Student support officer, 31 years)

Very good, they employed me while I was pregnant and have been good about my hours. (Sales assistant, 21 years)

They're very accommodating about my doctor's appointments, very flexible. (Teacher, 31 years)

Flexible jobs, HR is very into making it work for all employees, they help women return to the workforce. (Human resource officer, 31 years)

However, 15% (25/166) of the total sample reported that they had had difficulty negotiating necessary leave for the birth of their baby with their employer. Some experienced intimidation, or unwillingness on the part of the employer to commit to firm arrangements or guarantee their right to resume following birth. Some women described these difficulties as follows:

There's no precedent, it's a small company, so it has been a little bit mixed, and some directors are more supportive than others. (Town planner, 33 years)

They have pressured me to go back earlier. (Team leader, banking, 33 years)

They've been a bit vague, a bit ambivalent about the length of leave, its seen as a bit of a luxury, there's a bit of a resentment on their part, there hasn't been good negotiation about this. (Counselor, 32 years)

They assumed that I have a lack of career focus compared to childless employees. My bosses make reassuring noises but I don't know if they will deliver, it's all up in the air. I'll get my job back, but I may not get any entitlements. (Solicitor, 29 years)

They hinted that they didn't want me to come back, they think I am a risk or a liability, they'll fire me if they think I am not pulling my weight. I will not go back, it's a horrible workplace. (Warehouse assistant, 30 years)

They're a very stingy mean company; I have avoided discussing this (my leave) with them. They're trying to pressure me to go overseas in January (during third trimester), so I'm avoiding those discussions. (Teacher trainer, 41 years)



Still negotiating about leave [at 25 weeks gestation]. It's double edged, she [employer] herself is pregnant, but it's a bit contentious, there's some unspoken tension. (Social worker, 34 years)

#### **6.3.1.4 Pregnancy related workplace discrimination**

Pregnancy related workplace discrimination is defined by Human Rights and Equal Opportunity Commission as any act that “treats a pregnant woman differently than someone who, in the same material circumstances, is not pregnant” (Human Rights and Equal Opportunity Commission, 1999). Approximately one in five women (30/165, 18%) reported some form of workplace discrimination, as defined by HREOC, during pregnancy. A greater proportion of women employed in service, clerical and sales roles reported discrimination than those employed in professional and managerial roles, but this difference was not significant (24% compared with 15%, NS). Responses to open-ended questions revealed adverse experiences including a lack of accommodation of the physical limitations of pregnancy, inappropriate remarks, and a withdrawal or severance of job opportunities, for example:

Right up to my 24th week I was asked and expected to lift and move heavy objects and expected to perform an 11 hour straight shift. (Waitress, 19 yrs)

I have been treated as though I have an illness; it has been assumed that I would not be able to contribute from about 16 weeks. (Manager, 33yrs)

They made inappropriate comments....jokes, all the way through. (Accountant, 33 yrs)

My boss said that I was too tired, and that the pregnancy was interfering with my job. At 15 weeks, I had to leave that job to temp. (Receptionist, 32 yrs)

I was ridiculed by older women without children....people left condoms on my desk. (Warehouse assistant, 30yrs)

I was offered a great temporary role, but it was stopped as soon as I revealed that I was pregnant. (Nurse, 26 yrs)

They tried to sack me when I told them I was pregnant, then they cut all my shifts to only 1 day a week (Hairdresser, 23yrs)

They offered me a redundancy as soon as I revealed the pregnancy. (Manager, 38 yrs)

### **6.3.1.5 Frequency of “Workplace Adversity” during pregnancy**

“Workplace adversity” is a study-specific composite measure of workplace adversity which includes no access to paid and/or unpaid maternity entitlements, difficulty negotiating leave and pregnancy-related workplace discrimination (see Methods section 4.7.3.1). More than two thirds of participants (114/166; 69%) reported some form of workplace adversity. Thirty percent of women (49/166) experienced one form of workplace adversity, 27% (44/166) experienced two and 13% (21/166) experienced three or more forms of workplace adversity during pregnancy. More participants receiving public antenatal care (74/96, 78%) reported adversity than those with private health insurance (40/70, 57%),  $\chi^2_1 = 6.95$ ,  $p = 0.008$ , suggesting that adverse conditions and poor access to maternity-related entitlements is disproportionately experienced by women of lower socio-economic position.

### **6.3.2 Postnatal Employment**

Information about women’s postnatal workforce participation, including timing of return, job status on resumption, and any job changes from pregnancy to postpartum were collected in fixed-choice items in both postnatal questionnaires. Participants were also asked to identify which of a series of reasons were important for them in resuming paid employment, or for non-employed women, for remaining in full-time infant care.

#### **6.3.2.1 Postnatal workforce participation**

Current Australian estimates are that approximately 40% of Australian mothers resume employment in the first postnatal year (Australian Bureau of Statistics, 2006d; Whitehouse et al., 2006c). However, this data is not parity specific, and includes women who were not employed during pregnancy. Employment during pregnancy and having fewer children in the household predict higher postnatal employment participation for mothers (Baxter, 2005a) so it is likely that nulliparous women who

are employed in pregnancy will have higher participation rates than all mothers of infants. There is no appropriate Australian comparison for the study sample.

At three months after the birth of their baby, 18% (25/136) of participants were employed and by ten months 56% (73/129) of the total sample were employed. Ten percent of women (14/129) who had reported during pregnancy their plans for paid work in the first postpartum year decided postnatally to postpone their planned return to their job, and had not yet resumed at ten months. A further 17% (21/129) of participants reported their intention to resume employment when their baby was twelve months old; 7% (9/129) intended to return at eighteen months postpartum and 7% (9/129) when their baby was two years of age or older. In the final 10-month questionnaire, 13% per cent of women (17/129) reported no intention of returning to paid employment. Twelve women (9%) resigned after the birth. Employment intentions in pregnancy are compared with employment outcomes in Table 6.10.

**Table 6.10 Employment intentions in pregnancy and outcomes at ten months**

	<b>Pregnancy intention (N=166)</b>	<b>Ten months postnatal experience (N=129)</b>	<b>P- Value</b>
<b>Postnatal employment n (%)</b>	82 (49)	73 (56)	NS
<b>Timing of return, m (sd) postnatal weeks</b>	40.3 (33.8)	29.5 (12.1)	<0.005
<b>Return to same employer, n (%)</b>	85 (51)	56 (44)	NS
<b>Return to same position, n (%)</b>	86 (50)	40 (31)	<0.005
<b>Return status n (%)</b>			
<b>Full-time</b>	17 (10)	8 (6)	NS
<b>Part-time</b>	55 (32)	51 (40)	NS
<b>Casual</b>	16 (9)	13 (10)	NS
<b>Hours per week in employment m(sd)</b>	12.1(14.6)	19.0 (12.1)	<0.005

A similar proportion of participants had resumed employment by ten months postpartum as had intended to do so in pregnancy. On average, women resumed employment following the birth sooner than they had intended during pregnancy, and were employed for a greater number of hours each week than they had planned during pregnancy. Reasons for employment resumption are reported in Section 6.3.2.2 below.

Significant job and employment changes between pregnancy and the postpartum were evident. By ten months, significantly fewer participants resumed in the same job capacity or position following the birth than had expected to do so, even though half of the sample had intended to continue in the position they occupied during pregnancy. Some explanation for these job changes was offered by women in their qualitative comments. In the postnatal questionnaires, women who had changed employer since the birth (44/129, 34%), or who reported that they were no longer working in the same position as prior to the birth (40/129, 31%) were asked in open-ended questions about the reasons for these changes. As most participants had resumed in a part-time capacity following the birth, many found that their previous job responsibilities could not be fulfilled in reduced hours. Participants reported reduced responsibilities on resuming their employment, and some comments suggest that women had experienced demotion, or had limited choice about their role upon resumption:

Similar position, less responsibility as I am now casual. (Nurse, 29 years)

Couldn't resume same position given much less time in office. (Sales Director, 36 years)

Changed from co-ordinator role back to ward nursing. (Nurse, 34 years)

My role has been dissolved with some duties passed on the other members of staff, redeployed to sit on project committee. (Human Resources Officer, 36 years)

No longer supervisor in charge, now I'm moved around each time I work. (Hospitality worker, 38 years)

As I chose to return part-time, they put me into another role. (Disability worker, 26 years)

Job description changed; adapted to suit part-time, different responsibility. (Recruitment Officer, 32 years)

Have taken a step down in pay and responsibility due to change of employer and department. (Nurse, 29 years)

Left old job as I was told to come back full-time or not at all, including night shifts of 12 hours. Also went to part-time. (Manufacturer, 35 years)

My position was filled by a permanent and not available when I was returning, made an excuse about restructure etc. (Marketing manager, 33 years)

Went back to old employer but really there was no position for me – business too quiet. (Waiter, 31 years)

Some women welcomed their employment changes, suggesting that their current employment combined better with their mothering responsibilities:

I resigned from my job, originally was going to take maternity leave but was not happy working there and they were not being “fair” so resigned. I am now working in a less stressful, casual position, very relaxed atmosphere, very close to home and I can choose which days I work. (Recruitment Officer, 33 years)

Better pay and nearer to my crèche, which allows me to visit my baby during lunch. (International Support Officer, 31 years)

I left the job I had before my child was born because I didn’t like it very much. My new job is much better. (Teacher, 41 years)

I decided to work part-time and found a new position within organisation. (Diplomat, 31 years)

### **6.3.2.2 Reasons for resuming employment**

At three and ten months, women who had resumed employment were asked to indicate which of a series of fixed-choice factor(s) were important in their decision to return to paid employment. Participants who were employed at three months (n=25) and at 10 months responded to these items at both time-points. The distribution of responses is presented in Table 6.11.

**Table 6.11 Employed women’s reasons for resuming employment, 3 and 10 months**

Reasons for resuming postnatal employment	Three months N=25*		Ten months N=73*	
	N	%	N	%
<b>Keen to resume employment</b>	18	72	61	85
<b>Planned leave had ended</b>	9	36	28	40
<b>Income necessary</b>	21	84	61	85
<b>Worried about losing my job</b>	6	24	16	22
<b>Worried about missing out on job opportunities</b>	8	32	26	36
<b>Happy to have a break from caring for baby</b>	13	52	16	23
<b>Felt a sense of urgency</b>	9	36	16	22

\*Participants could respond to more than one item, so total responses is greater than total number of employed women at each time

At both three and ten months, financial imperative was the most common reason for resuming employment of the study-specific fixed-choice items. In an additional open-ended item, women also described their *main* reason for resuming employment at three and ten months. Responses were coded *post-hoc*, according to the most commonly reported reasons, as either “financial reasons”, “job-related imperatives”, “preference” or “other”. At three months, 65% (17/25) of participants reported that financial imperatives were the main reason they were currently employed. This was reported as the main reason by 43% (31/73) of participants at ten months, as described by participants:

My only reason for being back to work is the necessity of my income. I would rather defer. (Editor, 28 years, 3 months postpartum)

My husband lost his job just before our baby was born. We’d have no income without me working at the moment. (Teacher, 41 years, 3 months postpartum)

I have a mortgage and bills to pay, had no other choice. (Receptionist, 38 years, 3 months postpartum)

Being a single mum I struggled with the expense. (Waiter, 31 years, 10 months postpartum)

My leave had ended, we have a mortgage to continue paying so finances prompted a return to work. Ideally, taking finances out of the equation, I may have returned for 1 or 2 days per week for the intellectual stimulation. (Disability advocate, 31 years, 10 months postpartum)

I went back to work when I did mainly because I was the primary wage earner and I needed the income. (Nurse, 36 years, 10 months postpartum)

At three months, 7/25 participants (28%) reported job-related imperatives as the main reason for resuming employment, such as those described in the comments below. One participant did not complete this item at three months.

Wanting to maintain professional registration. (Nurse, 30 years)

The role had already commenced and I was asked to stay on until the completion of the project. (Teacher, 36 years)

I had entered into an agreement with my employer that I would do so. I did not want to once she was born but I am locked into this contractually for twelve months. (Manager, 32 years)

At ten months, a similar proportion of women reported that their main reason for resuming employment was their own preference as those citing financial imperatives (33/73, 46%).

To remind myself of the person I was before I had my baby – easy to forget when they come along! To socialise and interact with other adults. (Physiotherapist, 30 years)

I found I needed adult stimulation (I live alone) and also needed to stimulate my brain! (Secretary, 36 years)

For my own interest, to get out of the house and to mix with a more diverse group of people. (Landscape gardener, 31 years)

Full-time mum a bit boring, I love having adult conversation about other topics than baby. Good to get my brain active again. (Manager, 34 years)

I felt ready to go back to work. My employer agreed to part-time work and my mum is available to look after my daughter. If any of these conditions weren't met, then I would not have returned to work so soon. (Policy analyst, 30 years)

Two women cited other reasons at ten months; one woman wanted to “maintain our lifestyle”; a second participant had resumed employment to decide whether or not she would like to resign. The remaining women (6/73) did not answer this item at ten months.

Financial imperative appears to be the most common reason women cite for employment resumption, although maternal preference was also commonly reported as a reason for employment participation by those women employed at or before ten months. The relationship between women’s preferences and their concerns about separation from their infant, operationalised as “maternal separation anxiety” is reported in Section 6.6.6 below.

### 6.3.2.3 Reasons for remaining in full-time infant care

Women who were not in employment at three and ten months were asked to indicate which of the fixed-choice factor(s) were important in their decision to remain in full-time infant care. The responses at three and ten months are presented in Table 6.12.

**Table 6.12 Reasons for remaining in full-time infant care, 3 and 10 months**

Reasons for remaining in full-time infant care	Three months N=113*		Ten months N=56*	
	N	%	N	%
<b>Plan to resume when baby is older</b>	94	83	46	82
<b>No longer want to resume paid work</b>	32	28	22	39
<b>Reluctant to leave baby with anyone else</b>	86	76	39	70
<b>Easier to be home with baby than at a job</b>	53	47	25	45
<b>Unable to find suitable childcare</b>	52	46	31	55
<b>Decided not to resume in first 12 months</b>	74	65	44	79
<b>My job is no longer available to me</b>	15	13	14	25

\*Participants could respond to more than one item, so total responses are greater than total number of employed women at each time

Most women reported that they had not resumed paid work across the study period because they planned to resume when their baby was older, and a high proportion of women at both times planned not to resume in the first twelve postnatal months. At both three and ten months, over 70% of non-employed women reported that they were reluctant to leave their baby with anyone else. Non-employed women were also asked to write their *main* reason for not resuming paid employment in both postnatal questionnaires. Most women identified that they wanted to care for their baby exclusively at three (76/113, 67%) and ten months (37/56, 66%), as described in the comments below:

I want to be home with my baby in his first year. Work is not a priority at this point in my life. (Lawyer, 31 years, three months postpartum)



While breastfeeding it would be difficult to return to work. I also feel it is important for me and my baby to get to know each other. At this stage I don't think I could cope with returning to work. (Manager, 34 years, 3 months postpartum)

I want to spend time with my baby, not sure when I will feel he is "old" enough to not have me around and when I will be ready to "let go" and trust someone else with his care. (Receptionist, 31 years, 3 months postpartum)

Strongly felt the desire to be "there" all the time for my baby in her first few years. (Architect, 39 years, 3 months postpartum)

I always planned to take one year maternity leave before returning to my job so I could make the most of my child's first year of life and give the most to him. (Geographer, 33 years, 10 months postpartum)

Because I would rather stay at home and enjoy watching my baby grow and at her very young age, I am the best person to take care of her. (Nanny, 34 years, 10 months postpartum)

At three months, 7 mothers reported concerns about using non-parental care for their infant as their *main* reason for remaining out of the workforce, including whether it would be financially viable, or that they felt their baby was too young, or they were unable to secure any childcare. Nine mothers had similar concerns at ten months. Other reasons women identified, in the open-ended item, as critical to their decision to not participate in paid employment included job-related factors (10/56 women at ten months), such as long hours, or no part-time employment options; and maintaining breastfeeding (4/113 women at three months).

Women's reasons to resume employment in the postpartum year are suggestive of financial and job related imperative, but also suggestive of a preference for adult interaction, intellectual stimulation and pursuits outside of exclusive infant care. Conversely, women's reasons for remaining out of paid workforce describe their desire to be the primary carer for their infant, and their concern about the infant's well-being when placed in alternative care. It is likely that these reasons and comments are the qualitative descriptions of women's thoughts and feelings about separation from their infant, assessed quantitatively in this study using the Maternal

Separation Anxiety Scale (MSAS). The relationship between MSAS scores, employment status and maternal preferences is reported in Section 6.6.6 below.

#### **6.3.2.4 Satisfaction with employment hours**

At three months the 25 (18%) participants who were employed worked for a mean (sd) of 17.0 (12.7) hours each week, and at ten months, for a mean of 19.0 (12.1) hours per week. Four (16%) women felt that their working hours were “too short”, 13 (52%) reported that they were “about right”, and 8 (32%) felt that their hours each week were “too long” at three months. By ten months, 4 of the 73 women (6%) employed felt that their hours were “too short, 56 (78%) felt that they were “about right” and 13 (16%) felt that their employment hours were “too long”. Of those participants who did resume employment on the first ten months postpartum, the majority (64/73, 87%) resumed on a part-time (<35 hours per week) or a casual, rather than a full-time basis, and most participants were satisfied with these employment hours.

Eighty per cent of employed women at three months (20/25) and 74% of those employed at 10 months (53/72) agreed that their job was suitable to combine with their role as a mother. The remainder reported that their job was only somewhat suitable or not at all suitable at three (5/25, 20%) and ten (19/72, 26%) months. Very few women (18/129, 14% at ten months) provided written comments about this question, although all participants were requested to do so. The women who responded mainly described the difficulties of combining their employment with their infant care:

Two days of employment occur from home office, this has its challenges when my daughter is feeling unsettled or restless. (Disability advocate, 31 years)

I am able to work at home but when customers come to me it is difficult with baby when we're in the feed/nappy change mode. (Pianist, 33 years)

Without childcare, working at home is very difficult. My son only catnaps 3 x 40 mins during the day so I have no time for the kind of concentrated work I should be doing. (Editor, 28 years)

I run my business from home so I can care for my child at the same time. Difficult to manage workload in the limited time frame. (Art Dealer, 36 years)

Difficulty finding childcare with extended work hours. (Obstetric Registrar, 31 years)

### 6.3.2.5 Flexible employment arrangements

At ten months, participants who were employed (N=73) identified which, if any, flexible employment arrangements they had requested when they resumed their employment. The results are presented in Table 6.13.

**Table 6.13 Employment arrangements requested at ten months**

Arrangement	N=73*	%
Flexible working hours	23	32
Part-time employment	36	49
Working from home	22	31
Other	9	13

\* Some women requested more than one flexible arrangement, so total arrangements >73.

Of the nine women reporting that they used “other” arrangements, two reported that they had requested set shifts each week, two increased their hours gradually over the first month of resuming employment, two moved into self-employment, one woman requested shorter shifts, one requested on-site childcare, and one applied to be transferred to an office closer to home. Nearly all women (70/73, 97%) who were employed at ten months reported that their workplace was willing to agree to the requested changes, although as reported in Section 6.3.2.1 above, some women had to change employers, or change positions with their same employer to access part-time employment.

### 6.3.3 Maternal characteristics and employment factors associated with postnatal employment

One of the primary study aims was to identify factors associated with maternal employment participation in the postpartum. Maternal characteristics and employment conditions were compared for employed and non-employed women at ten months. Results are presented in Table 6.14.

**Table 6.14 Comparison between employed and non-employed women at ten months, maternal and employment characteristics**

	<b>Employed N=73(56%)</b>	<b>Non-employed N=56(44%)</b>	<b>P-Value</b>
<b>Maternal age, mean (years)</b>	32.4	31.1	NS
<b>Married, n (%)</b>	52 (71)	39 (70)	NS
<b>Australian born, n(%)</b>	55 (75)	39 (70)	NS
<b>Privately insured, n(%)</b>	37 (50)	19 (34)	NS
<b>University degree, n(%)</b>	53 (73)	35 (63)	NS
<b>ASCO 1-3*, n(%)</b>	56 (77)	37 (66)	NS
<b>Access to <i>paid</i> maternity leave, n (%)</b>	37 (51)	24 (44)	NS
<b>Access to <i>unpaid</i> maternity leave, n(%)</b>	47 (64)	34 (62)	NS
<b>Sexual discrimination in pregnancy, n(%)</b>	13 (18)	8 (14)	NS

\*ASCO 1-3 includes Managers, Professionals and Associate Professionals (Australian Bureau of Statistics, 1997a)

At ten months, employed and non-employed women were of similar age, marital status, and country of birth. More employed women had private health insurance, higher educational attainment and higher occupational status than non-employed women. These differences were not significant, but in a larger sample, they may have been, and it is possible that the present study may not have been sufficiently powered to detect this. Similar access to maternity entitlements, experience of discrimination in pregnancy, and ability to negotiate flexible working arrangements were reported by employed and non-employed women at ten months postpartum. This sample, by nature of inclusion criteria, was of women having a first birth, employed in pregnancy. These two factors are associated with an increased likelihood of employment in the postpartum compared to non-employed women, or those having a subsequent baby (Baxter, 2005a), and may explain why other expected differences in characteristics between employed and non-employed women were not observed in this sample.

For participants employed by ten months, the timing of postnatal employment resumption was strongly correlated with intended amount of time out of the workforce reported in pregnancy [ $r$  (95% CI) = 0.65 (0.54 to 0.74),  $p < 0.005$ ].

Women who reported that they felt “emotionally ready to work at a job” were significantly more likely to be employed at three (72% compared with 28%,  $\chi^2_1$

=11.6,  $p=0.005$ ), and ten months (89% versus 11%,  $\chi^2_1 = 12.1$ ,  $p=0.001$ ) than women who did not feel emotionally ready to be employed at either time point. Mothers' attitude about their career during pregnancy was also associated with participation in paid employment after the birth. Of the 65 (51%) women who agreed or strongly agreed that "my life would not be complete without my job / career", 66% (43/65) were employed at ten months, compared with 46% (29) of the 63 women who (strongly) disagreed or had mixed feelings about the same statement antenatally ( $\chi^2_1 = 5.3$ ,  $p=0.02$ ).

These univariate associations suggest that for this sample, maternal attitudes and intentions for employment participation are positively associated with employment at ten months postpartum, although financial necessity is cited by most employed women as relevant to their decision to resume employment. It is possible that maternal attitudes about employment are influenced, in pregnancy or after birth, by the nature of their developing attachment to their infant, and also by their experience of maternal separation anxiety. This relationship is explored in Section 6.5, and the relevant contribution of each of these factors to maternal employment participation at ten months is tested in multivariate analyses reported in Section 6.9.

## **6.4 MATERNAL MOOD AND EMOTIONAL WELL-BEING**

Two standardised psychometric measures of maternal mood and emotional well-being were used in all three questionnaires, the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) and the Profile of Mood States (PoMS) (McNair et al., 1971). Both measures were used as continuous measures, to assess the spectrum of maternal well-being, rather than to identify participants who met the criteria for probable clinical depression. Higher scores on each measure indicate more symptoms and lower mood.

Descriptive results and comparisons between mood in this sample, in comparable population studies are reported below. Several established risk factors for worse postnatal maternal mood were assessed in this study including lower antenatal mood, poor quality intimate partner relationship, low social support, adverse life events since

the birth and lower socio-economic position. Univariate associations between these and the standardised assessments of maternal well-being are presented.

#### 6.4.1 Maternal mood and well-being

Table 6.15 presents EPDS scores of the sample, in pregnancy and postnatally, compared with published studies that have reported mean (sd) EPDS scores in pregnancy and the postpartum, rather than only the proportion in the clinical range.

**Table 6.15 Comparison of antenatal and postnatal EPDS scores of study sample with relevant published studies**

	N	Time measured	Mean (sd)	Mean diff. (95% CI)	P-Value
<b>Antenatal comparisons</b>		<b>Weeks gestation</b>			
Study sample	166	31	7.1 (4.7)		
Evans et al. 2001 (UK)	12,059	32	7.1 (5.1)	-0.5 (-0.8, 0.7)	NS
Buist et al, 2005 (Aust)	40,333	26-32	6.9 (4.4)	0.2 (-0.6, 0.9)	NS
<b>Postnatal comparisons</b>		<b>Months postpartum</b>			
Study sample	129	10	6.5 (4.8)		
Miller et al. 2006 (Australia)	325	6	6.9	-0.4 (-1.2, 0.5)	NS
Rubertsson, et al. 2005 (Sweden)	2430	12	6.5	0.03 (-0.8, 0.8)	NS
Evans et al. 2001 (UK)	12,059	8	5.4 (4.7)	1.13 (0.3, 1.9)	0.009

Participants had similar EPDS scores antenatally to other studies of community samples of pregnant women. At 10 months, the sample had similar EPDS scores to recent Australian and Swedish studies of women assessed at 6 and 12 months postpartum respectively. A large prospective, cohort study from the UK reported a significantly lower mean score at 8 months than the study sample. The authors of this study acknowledge that a higher proportion of women who did not complete all four of the study questionnaires had higher depression symptom scores than women who were retained in the study, and there it is possible that the mean score EPDS score of 5.4 reported is an underestimate of depressive symptomatology (J. Evans et al., 2001).

Total PoMS scores are compared, both ante-and postnatally with a published study using this measure in a community sample of Australian childbearing women. Results are presented in Table 6.16.

**Table 6.16 Comparison of antenatal and postnatal total PoMS scores of study sample with relevant published comparison**

	N	Time measured	Mean (sd)	Mean diff. (95% CI)	P-Value
<b>Antenatal comparisons</b>					
Study sample	166	31	27.7 (29.8)		
Hayes, 2001 (Aust)	206	12-24	27.0 (na)	0.65 (-4.3, 5.6)	NS
<b>Postnatal comparisons</b>					
Study sample	138	12	18.4 (29.0)		
Hayes, 2001 (Aust)	206	8-12	14.0 (na)	4.5 (-0.4, 9.4)	NS

Participants had comparable PoMs scores both ante- and postnatally to other studies observing maternal mood in parturient Australian women.

Agreement between the EPDS mean score and the PoMS total and subscale mean scores was analysed at the ten months assessment and the correlation co-efficients  $r$  (95% CI) are presented in Table 6.17.

**Table 6.17 Agreement between EPDS and PoMs mean scores, 10 months**

PoMS scales	Correlation ( $r$ ) with EPDS mean	95% CI of $r$	P-Value
<i>Depression-Dejection</i>	0.78	0.70 to 0.84	<0.005
<i>Anger-Hostility</i>	0.58	0.45 to 0.68	<0.005
<i>Confusion-Bewilderment</i>	0.70	0.60 to 0.79	<0.005
<i>Fatigue</i>	0.54	0.41 to 0.65	<0.005
<i>Tension-Anxiety</i>	0.77	0.69 to 0.83	<0.005
<i>Vigour</i>	-0.59	-0.69 to -0.47	<0.005
<b>PoMS total</b>	0.81	0.74 to 0.86	<0.005

As expected, all PoMs sub-scales were strongly, and except for “Vigour”, positively correlated with the EPDS score at ten months. “Vigour” is the only positive mood attribute assessed by the PoMS, and is expected to correlate with lower EPDS

assessments of symptomatology. The PoMS and the EPDS are therefore complementary measures of maternal mood. They both assess symptoms of depression and anxiety, but the PoMS also provides assessments of other dimensions of maternal well-being including fatigue, functional efficacy, clarity of thought, and irritability. Together, they capture a range of related but distinct aspects of maternal well-being suitable to the purposes of the present study.

#### 6.4.2 Relationship between ante- and postnatal mood and well-being

Previous studies have reported a pattern of mood improvement from late pregnancy to the postpartum (Evans et al., 2001; Heron et al., 2004; Joseffson et al., 2001; Rubertsson et al., 2005b). One-way repeated analyses of variance were conducted to examine whether there was any change in EPDS total scores, and PoMS total and subscale scores from pregnancy throughout the postpartum year. Results are presented in Table 6.18.

**Table 6.18 Mean EPDS and PoMS total and subscale scores, assessed for effect of time (n=129)**

Scale, mean scores	Pregnancy	Three months	Ten months	Fisher's exact (F) (df, error df)	P-Value for F
<b>EPDS total</b>	7.1	6.1	6.5	1.24 (2, 115)	NS
<b>PoMS</b>					
<i>Total</i>	25.2	18.2**	23.2*	5.23 (2, 111)	0.007
<i>Depression-Dejection</i>	6.2	6.8	7.0	0.55 (2, 111)	NS
<i>Anger-Hostility</i>	5.9	5.4	5.9	0.69 (2, 113)	NS
<i>Confusion-Bewildermt</i>	8.2	6.5**	7.7**	12.65 (2, 113)	<0.005
<i>Fatigue</i>	11.2	9.5**	9.9 <sup>†</sup>	4.02 (2, 113)	0.02
<i>Tension-Anxiety</i>	8.6	6.7**	8.7**	14.31 (2, 113)	<0.005
<i>Vigour</i>	15.0	16.7**	16.1	5.27 (2, 113)	0.006

\*p ≤ 0.05 or \*\*p ≤ 0.005 difference with preceding assessment

<sup>†</sup> difference between time one and time three, p ≤ 0.05 or less

While there was a reduction in both EPDS scores, and PoMS Depression-Dejection scores from pregnancy to ten months postpartum, these differences were not significant, suggesting that there was stability over time in depressive symptoms. However, there were significant differences across the study intervals in other aspects of well-being. Participants' Confusion-Bewilderment and Tension-Anxiety subscale scores were reduced between pregnancy and three months postpartum, but were



significantly heightened again by ten months following birth. This suggests that while the early postpartum year may convey some relief from anxiety symptoms reported in pregnancy, the later months in the postpartum year was associated by higher anxiety, and less clarity of thought. It is possible that as some participants adjust to the introduction of other life goals, including employment, later in the postpartum year, these transitions are accompanied by heightened anxiety.

Women’s reported fatigue declined between pregnancy and three months, and correspondingly, women felt more vigorous in the early postpartum than in pregnancy.

### 6.4.3 Social support

In the ten month postnatal questionnaire, participants were asked to indicate which of the following friends and relatives had provided them with practical and/or emotional support since the birth of their baby: partner, own parents, partner’s parents, friend(s), siblings and any other individuals they felt has been of assistance to them. The distribution of responses is presented in Table 6.19.

**Table 6.19 Sources of practical and emotional support provided since the birth**

	<b>Practical support only N (%)</b>	<b>Emotional support only N (%)</b>	<b>Both practical and emotional support N (%)</b>
<b>Partner</b>	5 (4)	3 (2)	106 (82)
<b>Mother</b>	8 (6)	24 (19)	81 (63)
<b>Father</b>	19 (15)	29 (22)	34 (26)
<b>Mother-in-law</b>	25 (19)	15 (12)	35 (27)
<b>Father-in-law</b>	14 (11)	8 (6)	20 (16)
<b>Sibling</b>	13 (10)	20 (16)	46 (36)
<b>Friend</b>	5 (4)	33 (26)	74 (57)
<b>Other</b>	7 (5)	3 (2)	16 (12)

\* Participants identified more than one source of support, so total is >129 and >100%

“Other” sources of support identified by participants included new parents’ groups initiated by local-government maternal and child health centres, maternal and child health nurses and colleagues at the workplace. The majority of participants were well supported, both practically and emotionally, in particular by their partner, their own family of origin and friends.

Participants' practical and emotional support was weighted and summed (see Methods 5.7.4.2) to give a total "social support score", with a possible range of 0-24, higher scores indicating more practical and emotional support. The scores approximated normal distribution (skewness = 0.09 and kurtosis = -0.4) and the mean (sd) social support was 12.4 (0.3), range 3 to 22. There was no significant difference in mean total "social support scores" reported by employed and non-employed women at ten months (12.3 versus 12.4, NS).

Insufficient peer and family social support is an established risk factor for postpartum depressive symptoms (Scottish Intercollegiate Guidelines Network, 2002). In the present study, there was no discernible association between the 10-month EPDS assessment and "total social support" score ( $r = -0.13$ , NS), nor were there any significant correlations between total social support and the PoMS total score ( $r = -0.1$ , NS), or PoMS subscale scores.

However, partner support with the domestic workload was significantly associated with maternal mood. Of the women who were partnered at ten months (119/129), 13% (15/119) reported that they were "dissatisfied" with their partner's contribution to domestic workload and infant care; 21% (25/119) were "somewhat satisfied", and 66% (79/119) were "satisfied". Compared to women who were satisfied with their partner's contribution, women who were only somewhat, or were dissatisfied with partner's contribution (34%) reported significantly more depressive symptoms on the EPDS [5.3 versus 8.4, mean difference (95%CI) = 3.1(1.4 – 4.8),  $p=0.001$ ] and the PoMS [17.4 versus 37.1, mean difference (95%CI) = 19.7 (8.4-30.9),  $p=0.002$ ].

#### **6.4.5 Quality of the intimate relationship**

Participants completed a standardised measure assessing the quality of their intimate relationship with their partner at three months after the birth. The Intimate Bonds Measure (IBM) is a measure of the perceived "Care" - consideration, warmth and affection - and "Control"- domination, criticism and intimidation – present within intimate partner relationships (Wilhelm & Parker, 1988). Overall, study participants reported more caring, considerate and attentive relationships, characterised by less intimidation or aggression than the normative sample, as presented in Table 6.20.

**Table 6.20 Comparison of IBM “Care” and “Control” scales (3 months) with normative sample**

	Study sample N=128*	Comparison female norms** N=148	Mean diff (95% CI)	P-value
IBM Care M(sd)	30.7 (6.1)	27.1 (6.1)	3.6 (2.5, 4.7)	<0.005
IBM Control M(sd)	5.1 (5.7)	9.6 (5.4)	-4.6 (-5.6, -3.6)	<0.005

\* Only completed by participants who were partnered, and provided 3 month data  
 \*\* (Wilhelm & Parker, 1988)

At ten months, for partnered women (married and de-facto, n=119) there were no significant differences between employed and non-employed women in either the amount of care and affection they reported within their intimate partner relationship (31.6 vs 31.4, NS), or the amount of domination and control (5.0 versus 4.2, NS).

There is substantial evidence that a support from an intimate partner provides protection against postnatal mood disturbance (Scottish Intercollegiate Guidelines Network, 2002). Correlations between three-month assessments of maternal mood (EPDS and PoMS) and IBM “Care” and “Control” scales are presented in Table 29. In the validation study of the IBM, Wilhelm and Parker reported high test-retest reliability of the IBM over time (Wilhelm & Parker, 1988). The measure reflects the stable nature of the intimate relationship and is not intended for use as a repeat measure. Correlation analyses between mood scores at ten months and the IBM assessment at three months were also conducted, and results are presented in Table 6.21.

**Table 6.21 Correlation between IBM scales and maternal well-being measures at 3 and 10 months**

IBM Subscales	Correlation with IBM Care <i>r</i> (95%CI)	P-Value	Correlation with IBM Control <i>r</i> (95%CI)	P-Value
<b>3 months, N=138</b>				
EPDS	-0.40 (-0.53 to -0.25)	<0.001	0.45 (0.30 to 0.58)	<0.005
PoMS	-0.42 (-0.55 to -0.27)	<0.001	0.44 (0.29 to 0.57)	<0.005
<b>10 months, N=129</b>				
EPDS	-0.31 (0.15 to 0.46)	<0.001	0.31 (0.15 to 0.46)	<0.005
PoMS	-0.40 (0.25 to 0.55)	<0.001	0.33 (0.17 to 0.48)	<0.005

Consistent with established evidence, being in a more caring, warm and considerate relationship was associated with experiencing less postnatal distress and mood disturbance. Correspondingly, women whose partners were more intimidating and domineering reported more depressive symptoms at three and ten months.

#### 6.4.6 Stressful life events

At ten months, 39% (50/129) of participants reported that they had experienced a stressful life event since the birth of their baby. The types of stressful events experienced by participants are displayed in Table 6.22.

**Table 6.22 Stressful life events experienced since the birth**

Stressful life event since birth	Participants with health problem (N=50/129)*	
	N	%
Infant disability or significant illness	5	4
Participant's own serious illness	8	6
Financial concerns	7	5
Housing concerns (moving, renovating)	8	6
Intimate relationship conflict / breakdown	9	7
Illness of family member (own parent, sibling, in-law)	14	11
Death of family member (own parent, sibling, grandparent)	6	5
Workplace conflict	2	1
Reproductive difficulties (miscarriage, IVF treatment)	2	1

\*Some participants reported more than one stressful event, total > 50.

Fifty women (39%) reported a total of 58 adverse life events since the birth. Most participants had experienced only one stressful event since the birth (41/58, 71%), the remainder experiencing two (15/58, 26%) or three (2/58, 3%) concurrent difficulties. Of the women reporting a stressful event, over half of these difficulties occurred in the first three postnatal months (31/58, 54%). The remainder occurred between four and eleven months postnatally (27/58, 46%). Illness of a close family member, commonly a participant's own parent, was the most prevalent stressful life event experienced by participants. Women caring for their own young infant described the difficulty of combining this with the care of their ill family member in additional comments, for example:

My brother's partner was an involuntary patient in a psych ward for two months and I had to help with the care of their infant. (Recruitment officer, 39 years)

My mother-in-law was sick for a month and I had to take care of her and look after the baby also. (Nurse, 29 years)

My mother was diagnosed with cancer when my child was three months, she died when he was ten months. Very stressful for both myself and my family, lots of hospital visits and my child has been very clingy. (Marketing assistant, 34 years)

Other unanticipated and often multiple concurrent stressful life events were reported by participants such as:

My partner is generally not coping with the birth of our baby, and is under psychiatric care. (Account manager, 37 years)

My baby got very sick with meningitis when he was five weeks old and was in hospital for 5 weeks. (Nurse, 30 years)

My husband was unemployed for a long period after the birth. (Research scientist, 33 years)

My accommodation is uncertain, and my relationship with the baby's father broke up before the birth. (Waiter, 31 years)

I had to return to hospital with a postnatal infection and spend one week in hospital without my baby. (Receptionist, 20 years)

My mother passed away when my baby was three months old and I was diagnosed with Lymphoma, and have been receiving chemo. (Geographer, 33 years)

Baby is not a good sleeper. Financial problems due to me staying home. Not feeling good about myself and hard to find time for just me. (Teacher, 34 years)

My mother-in-law passed away, my father-in-law has cancer and my job was made redundant. (Manager, 38 years)

Although more women who had reported an adverse life remained out of the paid workforce at ten months postpartum (48%) than women who had not experienced an adverse event (40%), this difference was not significant.

Stressful life events during pregnancy and following birth are considered to be established determinants of perinatal mood disturbance (Scottish Intercollegiate Guidelines Network, 2002). Maternal mood, assessed by the EPDS and the PoMS were compared at ten months between women who did and did not report a stressful life event since the birth. Results are presented in Table 6.23.

**Table 6.23 Comparison of mood scores between women with and without concurrent stressful life events, 10 months**

Scale	Stressful life events N=58	No stressful events N=71	Mean difference (95% CI)	P-Value
EPDS 10 months, m(sd)	8.2 (5.3)	5.1 (3.9)	-3.1 (-4.7, -1.5)	<0.005
PoMS total 10 months, m(sd)	34.9 (34.0)	16.6 (29.5)	-18.3 (-29.4, -7.1)	0.002

As expected, women who had experienced a stressful life event since the birth of their child reported significantly poorer mood and worse well-being than women who did not report stressful events postnatally.

#### **6.4.7 Maternal mood and socio-economic position**

In previous studies of childbearing women, worse maternal mood has been associated with lower socioeconomic status (Bernazzani et al., 1997; Kermode et al., 2000; Warner et al., 1996). In this study, having private health insurance is a reliable measure of socio-economic advantage (see Section 6.2, Table 6.5). Table 6.24 presents mean scores of both the EPDS and the PoMS total, compared in pregnancy, and at three and ten months following birth for participants with and without private health insurance.

**Table 6.24 Comparison of maternal mood and well-being by health insurance status in pregnancy and at 3 and 10 months postpartum**

Scale, mean (sd)	Privately insured participants N=65	Non-insured participants N=80	Mean diff. (95% CI)	P-Value
<b>Antenatal T1</b>				
<b>EPDS</b>	5.7 (4.1)	8.2 (4.9)	2.6 (1.0, 4.1)	0.001
<b>PoMS</b>	22.2 (26.6)	32.1 (31.8)	9.8 (0.02, 19.1)	0.05
<b>3 Months, T2</b>				
<b>EPDS</b>	5.5 (3.6)	6.6 (4.2)	1.1 (-0.2, 2.5)	NS
<b>PoMS</b>	11.5 (24.3)	25.0 (31.5)	13.5 (3.9, 23.0)	0.006
<b>10 Months, T3</b>				
<b>EPDS</b>	5.3 (4.5)	7.4 (4.9)	2.1 (0.4, 3.8)	0.01
<b>PoMS</b>	17.5 (29.3)	31.0 (34.3)	13.4 (2.1, 24.8)	0.02

At all three time points, women of lower socioeconomic position reported more depressive symptoms and more psychological distress on the PoMS than more socio-economically advantaged women. Similar results were noted for the EPDS, except at three months postpartum, when scores were similar for both insured and non-insured women. Other published research has observed a pattern of general mood improvement from pregnancy to the postpartum, and this may explain the comparable low depressive symptoms observed in all participants in the early postpartum, regardless of socio-economic position (J. Evans et al., 2001; Kermode et al., 2000).

Taken together, these results confirm those of existing research into the personal and social factors governing maternal well-being in the postpartum. As expected, a less affectionate, uncaring intimate partner relationship characterised by criticism and control, and experiencing concurrent adverse events were significantly associated with worse postpartum mood and poorer well-being at ten months. Social support had no measurable association with maternal mood in this group, but dissatisfaction with partner contribution to the unpaid domestic workload was associated with lower maternal well-being, as was socio-economic disadvantage. These potentially confounding factors known to contribute to poor maternal mood will be adjusted for in multivariate analyses addressing one of the primary study aims, investigating the relative contribution of employment variables to maternal well-being (Section 6.10).

## 6.5 EMPLOYMENT AND MATERNAL WELL-BEING

To ascertain which of the employment characteristics included in this study are of salience to maternal mood, univariate associations between employment conditions, employment characteristics, maternal preferences, satisfaction and maternal well-being are reported.

### 6.5.1 Maternal antenatal well-being and Workplace Adversity

One of the hypotheses of this study (hypothesis three) was that workplace adversity (described in 6.3.1.5 above), such as not being able to access maternity leave, or experiencing pregnancy-related workplace discrimination would contribute to poorer maternal antenatal well-being. A composite measure of “Workplace Adversity” was constructed in which women who experienced one or more of the following were classified as experiencing workplace adversity: workplace discrimination in pregnancy, no access to either paid or unpaid maternity leave, or difficulty negotiating leave with their employer (see Methods section 5.7.4.1). Well-being as assessed by the antenatal EPDS and PoMS was compared for women with and without workplace adversity in pregnancy, and for whom there was complete pregnancy mood data available (145/166, 87%). These comparisons are presented in Table 6.25.

**Table 6.25 Comparison of Antenatal EPDS and PoMS scores by experience of workplace adversity**

Scale, m(sd)	No adversity N=46	Adversity N=99	Mean diff (95% CI)	P-Value
<b>EPDS mean</b>	5.5 (3.4)	7.7 (3.1)	-3.2 (-3.7, -0.8)	0.003
<i>PoMS mean</i>				
<i>Depression</i>	4.8 (5.8)	8.3(9.8)	-3.4 (-5.9, -0.7)	0.01
<i>Anger</i>	4.9 (5.8)	6.9 (7.5)	-1.9 (-3.9, -0.1)	0.04
<i>Confusion</i>	8.0 (3.7)	8.0 (4.9)	-0.7 (-2.2, 0.7)	NS
<i>Fatigue</i>	9.9 (5.2)	12.3 (5.9)	-2.4 (-4.4, -0.4)	0.02
<i>Vigour</i>	14.5 (5.4)	14.6 (5.2)	0.3 (-1.6, 2.2)	NS
<i>Anxiety</i>	7.5 (4.6)	9.8 (6.5)	-2.2 (-4.1, -0.4)	0.02
<b>PoMS total, mean</b>	20.3 (21.0)	31.3 (32.9)	-10.9 (-20.0, -1.9)	0.01

Women reporting workplace adversity during pregnancy on the composite measure of ‘workplace adversity’ (99/145, 68%), had significantly higher scores on both the total POMS and the EPDS depression scale, and significantly higher levels of anxiety, fatigue, irritability and depression on the POMS subscales in pregnancy than women



reporting no workplace adversity (46/145, 32%). Discrimination in pregnancy, coupled with the prospect of no income and no job security following was associated with measurably worse antenatal well-being, suggesting that employment conditions and entitlements are salient factors for consideration in assessments of maternal antenatal well-being.

### 6.5.2 Postnatal employment and maternal well-being

Maternal well-being assessed using the PoMS and EPDS was compared for employed and non-employed women at three and ten months postpartum. Results are presented in Table 6.26.

**Table 6.26 Comparison of maternal well-being for employed and non-employed women, 3 and ten months**

	Three Months		P-Value	Ten Months		P-Value
	Employed N=25	Not employed N=111		Employed N=73	Not Employed N=56	
<b>EPDS, mean</b>	7.0	5.9	NS	6.7	6.3	NS
<b>PoMS total, mean</b>	23.5	17.3	NS	24.3	26.1	NS
<i>Depression-Dejection</i>	9.2	6.5	NS	7.3	7.9	NS
<i>Tension-Anxiety</i>	7.5	6.6	NS	8.8	9.1	NS
<i>Confusion-Bewilderment</i>	6.9	6.3	NS	7.7	8.0	NS
<i>Anger-Hostility</i>	5.6	5.8	NS	6.6	6.8	NS
<i>Fatigue</i>	10.8	9.1	NS	10.1	10.3	NS
<i>Vigour</i>	16.5	17.2	NS	7.7	8.0	NS

Although women employed at 3 months had more psychological distress than non-employed women, these differences were not significant. It is possible that the sample was not sufficiently powered to detect significant differences between sub-groups. However, even at ten months, employment participation does not appear to have a direct association with maternal well-being in these cross-sectional analyses.

Repeated-measures analyses of variance were conducted to investigate whether employed and non-employed women's mood and well-being varied differently across the three study intervals. For women who were employed by ten months (n=73), their EPDS scores (6.2, 5.9 and 6.4 respectively, NS) and PoMS scores (22.1, 18.0 and 23.5, NS) were comparable at each of the three study intervals. Women who were not

employed at ten months postpartum had similar EPDS scores in pregnancy and at three and ten months postpartum (7.0, 5.9 and 5.8, NS), but reported significantly improved mood at three months following birth compared to pregnancy (Tukeys' post hoc test) on the PoMS [29.6, 18.5 and 22.8 respectively,  $p < 0.001$ ]. While employment participation does not seem to adversely affect maternal mood, not having to prepare for employment during the transition to motherhood may contribute to the improved early postpartum mood, sustained until ten months after birth, observed in non-employed women.

The absence of a direct relationship between employment participation and adverse mental health outcomes in the postpartum period is consistent with existing literature that has found no consistent adverse effect of employment on women's mental health in adulthood (Fugate-Woods, 1985; Powell & Reznikoff, 1976; Schwartzberg & Scher, 1989). Other authors have since argued that variations in employed women's mental health are best conceptualised by addressing complexity, rather than direct, relationships (Barnett & Hyde, 2001; Elgar & Chester, 2007; Hyde et al., 2001). This is particularly so in the postpartum, when psychological adjustment to new circumstances is required across the transition to parenthood.

This study hypothesised that women's satisfaction with their employment and childcare arrangements would influence their mood and well-being. Results describing reasons for employment resumption, maternal preferences and maternal satisfaction and the relationship of these to maternal mood are presented below.

### **6.5.3 Reasons for employment resumption and maternal well-being**

It was hypothesised that women who had resumed employment for financial or job-related obligations would experience more distress than those who resumed primarily according to their own preference to be employed. Comparison of PoMS and EPDS total mean scores at ten months for employed women (N=73), on the study-specific fixed choice reasons for resumption are presented in Table 6.27.

**Table 6.27 Comparison of mood measures for employed women (n=73) by reason of employment resumption, 10 months**

Reasons for employment	EPDS total, mean score		P-Value	PoMS total, mean score		P-Value
	Yes	No		Yes	No	
<b>Keen to resume</b>	6.7	6.1	NS	23.6	25.4	NS
<b>Planned leave ended</b>	6.7	6.6	NS	22.8	25.4	NS
<b>Income necessary</b>	6.5	7.6	NS	21.8	36.1	NS
<b>Worried about losing job</b>	9.9	5.4	0.001	39.5	19.7	0.03
<b>Worried about missing job opportunities</b>	7.6	6.1	NS	22.2	24.8	NS
<b>Happy for break from baby care</b>	6.3	7.2	NS	22.8	25.7	NS
<b>Sense of urgency to return</b>	9.1	5.9	0.01	38.1	19.7	0.04

Women who resumed predominantly for financial necessity reported similar well-being to those who resumed out of their own preference to do so. However, two job-related characteristics were associated with more distress and depressive symptoms in employed mothers. Women who reported that their own “worry about losing my job”, (N= 16/73, 22%) and “sense of urgency to return to my job” (N= 16/73, 22%) were important reasons for the resumption of their employment reported significantly poorer emotional well-being than women who resumed for other reasons.

Of those women who were employed at ten months, women who felt that their job was not suitable to combine with mothering an infant (20/73, 27%) had significantly worse mood reflected in higher scores on both the EPDS [10.0 compared to 5.4, mean difference (95%CI) = 4.6 (2.4, 6.8),  $p < 0.005$ ] and the PoMS [43.9 versus 17.3, mean difference (95% CI) = 26.6 (11.1, 42.1),  $p = 0.001$ ] than women who felt that their job was suitable to combine with motherhood.

For women who remained out of the paid workforce at ten months (n=56), women who indicated that their reason for remaining in full-time infant care was because they were unable to access suitable childcare reported comparable mood to those who did not report this reason for remaining in the unpaid workforce, reflected in EPDS scores (7.1 versus 5.3, NS), and PoMS scores (32.5 versus 18.1, NS).

### 6.5.4 Maternal employment preferences

Previous studies have suggested that maternal preference for postnatal employment is associated with employment participation (Baxter, 2008b), as well as with better mood in employed postpartum women (Klein et al., 1998). In both postnatal questionnaires in this study, participants were asked to respond to the following item assessing preferences for employment on a fixed choice 5-item scale ranging from “strongly agree” to “strongly disagree”: “If I could choose between full-time employment, and staying home with my baby, I would want to stay home”.

The same item was asked for part-time employment. Responses to each of these statements were reduced from five to three categories: “(strongly) agree”, “mixed” and “(strongly) disagree” The distribution of responses is presented in Table 6.28 below.

**Table 6.28 Participants’ responses to statement expressing preference for infant care versus full- and part-time employment, 3 and 10 months**

Preference for infant care versus employment, full and part-time	Three months N=138	10 Months N=129
<b>Full-time (&gt;35 hrs/week)</b>	<b>N (%)</b>	<b>N (%)</b>
Prefer infant care	107 (78)	100 (78)
Mixed feelings	21 (15)	22 (17)
Prefer full-time employment	10 (7)	7 (5)
<b>Part-time (&lt;35 hrs/week)</b>		
Prefer infant care	58 (42)	38 (29)
Mixed feelings	44 (32)	38 (29)
Prefer part-time employment	36 (26)	53 (42)

At both three and ten months, most participants expressed a preference for infant care above that of full time employment suggesting that very few women preferred to resume full-time employment whilst caring for their infant. However, participants’ feelings about part-time employment at three and ten months postpartum were more evenly distributed (Table 6.28).

The 3 response categories for part-time employment were reduced to 2: “preference” (53/129, 42%) versus “mixed/no preference” (76/129, 58%) for part-time employment at ten months. Women who preferred part-time employment (42%), were significantly

more likely to be employed at 10 months than women who reported mixed /no preference for employment (75% compared to 43%,  $\chi^2_1 = 13.06$ ,  $p < 0.005$ ). This suggests that maternal preferences are relevant to women's employment decisions at ten months postpartum.

### **6.5.5 The “Maternal Satisfaction Index” (MSI)**

The second hypothesis for this study was that women who were more satisfied with their employment and childcare arrangements would report better mood and well-being than those who were less satisfied with their current arrangements.

“Maternal Satisfaction Index” (MSI) was the study-specific, composite 7-item assessment of maternal satisfaction with current employment and childcare arrangements. Possible scores on the MSI ranged from 7-35, with higher scores indicating greater maternal satisfaction. At three months postpartum, participants reported a mean (sd) score of 28.0 (5.8), range 7-35, and a similar mean (sd) was reported at ten months after birth of 27.3 (6.4), range 7-35.

There were no significant differences between the three-month and ten-month postpartum mean scores, suggesting that women's satisfaction with their employment arrangements was relatively stable over the postpartum. MSI scores were compared at three and ten months for employed and non-employed women at three [mean difference (95% CI) = 2.0 (-0.5, 4.5), NS] and ten months [mean difference (95% CI) = 1.0 (-1.3, 3.3), NS] and there were no discernible differences between women in employment and those in full-time infant care.

Correlations between the MSI and standardised measures of maternal well-being are presented in Table 6.29 below.

**Table 6.29 Correlation Maternal Satisfaction Index (MSI) and maternal well-being measures, 3 and 10 months**

Well-being measure	Correlation ( <i>r</i> )	95% CI of <i>r</i>	P-Value
<b>3 months, N=138</b>			
EPDS	-0.53	-0.64 to -0.40	<0.005
PoMS	-0.56	-0.66 to -0.43	<0.005
<b>10 months, N=129</b>			
EPDS	-0.65	-0.74 to -0.54	<0.005
PoMS	-0.42	-0.55 to -0.27	<0.005

Women who were more satisfied with their current arrangements reported significantly fewer depressive symptoms and better well-being at three and ten months postpartum. Further comparisons of MSI mean scores were conducted (t-tests; correlation, *r*) to ascertain which, if any, of the employment variables assessed in this study were related to reported maternal satisfaction with employment and childcare at ten months. Results are reported in Table 6.30.

**Table 6.30 Maternal employment characteristics and maternal satisfaction (MSI score), 3 and 10 months postpartum**

Employment characteristics	MSI score 3 months		P- Value	MSI score 10 months		P- Value
	Yes	No		Yes	No	
<b>Total sample</b>						
Paid maternity leave available	28.1	28.0	NS	26.6	28.0	NS
Unpaid maternity leave available	27.8	28.5	NS	28.0	26.9	NS
Pregnancy discrimination experienced	28.0	28.0	NS	25.4	27.6	NS
<b>Employed women, 3 and 10 months</b>						
Preference for part-time employment	26.7	25.4	NS	27.3	26.2	NS
Resumed with same employer	30.6	25.3	0.05	30.0	26.4	0.05
Job suitable to combine with infant care	27.6	22.0	0.05	28.0	21.7	0.001
Weeks of absence prior to resumption ( <i>r</i> )	0.38		0.05	0.06		NS
Hours per week employed ( <i>r</i> )	-0.54		0.005	-0.21		0.07

These results suggest that several employment conditions were associated with higher maternal satisfaction in the postpartum for employed women, particularly in the earlier postpartum assessment (3 months). Women who resumed with the same employer, who had longer leave duration and who were employed for fewer hours per

week reported higher satisfaction than women not reporting these employment characteristics at three months. Similar findings are reported at ten months, although the relationship with between higher maternal satisfaction and spending fewer hours per week in employment is less robust. Adverse employment conditions reported in pregnancy, including discrimination and no access to maternity entitlements, did not appear to have any association with MSI scores, but at both three and ten months postpartum, women who agreed that their job readily combined with mothering their infant reported higher satisfaction than women who disagreed with this statement.

Table 6.31 presents MSI scores compared by reason for employment resumption for employed women at ten months postpartum.

**Table 6.31 MSI scores and reasons for employment at ten months, (n=73)**

Reasons for resuming*	MSI Scores		Mean diff (95% CI)	p-value
	Important	Not important		
<b>Keen to resume employment</b>	27.0	26.5	-0.47 (-4.3, -3.3)	NS
<b>Planned leave had ended</b>	25.3	28.0	2.7 (-0.02, 5.4)	NS
<b>Income necessary</b>	26.9	27.2	0.30 (-3.7, 0.43)	NS
<b>Worried about losing my job</b>	22.9	28.1	5.2 (2.1, 8.4)	0.001
<b>Worried about missing out on job opportunities</b>	25.2	28.0	2.6 (-0.02, 5.4)	NS
<b>Happy to have a break from caring for baby</b>	28.1	24.5	-3.4 (-6.3, -0.7)	0.02
<b>Felt a sense of urgency</b>	26.0	27.2	1.4 (-1.8, 4.7)	NS

\*participants could select more than one of these fixed-choice reasons

Lower maternal satisfaction was associated with having limited discretion about employment resumption, including being worried about the job being revoked, or reporting a sense of urgency to resume.

On the open-ended item asking participants to nominate their main reason for employment resumption (Section 6.3.2.2), women whose main reason for resuming employment was classified as “financial imperative” (31/73, 43%) had significantly lower MSI scores than those classified as returning out of “preference” [25.4 versus 28.0, mean difference (95% CI) = 2.7 (0.2 to 5.5), p=0.05]. There is some suggestion that those women who resumed out of necessity rather than choice reported significantly worse satisfaction with their current employment participation.

For not employed women, there were no significant differences in MSI scores for any of the fixed-choice reasons for remaining in full-time infant care (see Table 6.12), except between women reporting that they were and were not able to find suitable childcare for their baby. Women who were not employed because they were unable to secure suitable childcare had significantly lower satisfaction with their current arrangements than women not indicating that this was a reason for their continuing occupation in the unpaid workforce [26.2 versus 29.8, mean difference (95% CI) = 3.6 (0.17 to 7.3),  $p=0.05$ ].

Together, these results suggest that lower maternal satisfaction was not associated with either employment, or primary infant care. Rather, these results suggest that maternal satisfaction with employment and childcare arrangements is governed by several observable, employment and structural constraints for both employed and non-employed women. The relative contribution of this to maternal postpartum mood will be investigated in multivariate analyses.

## **6.6 MOTHER-INFANT ATTACHMENT AND MATERNAL SEPARATION ANXIETY**

One of the aims of the study is to investigate which, of a broad range of factors contribute, to women's employment participation. Hypothesis one stated that one of the factors potentially influencing maternal employment participation was the maternal-infant relationship, operationalised as mother-to-infant attachment and maternal separation anxiety. Mothers' emotional attachment to their unborn baby and later, their infant, was assessed in pregnancy and at both postpartum intervals. "Attachment" is defined as an 'emotional tie' or 'psychological bond' that develops between a mother and her growing baby in-utero and following the birth (Condon, 1993).

### **6.6.1 Mothers' emotional attachment to their unborn baby**

Maternal-foetal attachment was assessed in the pregnancy questionnaire by the Antenatal Attachment Questionnaire (AAQ). This scale quantifies two dimensions of maternal attachment: the "Quality" of maternal affective experiences towards the



foetus, and the quantity of “Time” women spend thinking about their unborn baby. Higher scores on these scales indicate stronger maternal-foetal attachment. Scores on both subscales and the total AAQ were compared with the Australian sample of 112 women who completed the AAQ at a mean gestation of 32 weeks in the development study of this questionnaire in Table 6.32.

**Table 6.32 Comparison sample AAQ scores with comparative data**

Scale	Study Sample* N=147	Comparison Sample N=112**	Mean difference (95%CI)	P-Value
AAQ Quality, m(sd)	51.0 (7.2)	49.2 (4.9)	1.8 (0.6, 3.0)	0.004
AAQ Time, m(sd)	28.1 (4.2)	26.5 (4.8)	1.6 (0.8, 2.3)	<0.005
Total AAQ, m(sd)	78.4 (6.7)	75.7 (8.1)	2.7 (1.6, 3.9)	<0.005

\* For those participants who completed written T1 questionnaire, mean(sd)=29(5) weeks gestation

\*\* (Condon, 1993), assessed at mean(sd)=32(5) weeks gestation

Study participants reported a significantly stronger emotional closeness to their unborn infant, and spent more time thinking about their unborn babies than the normative sample. The comparison sample was drawn from a group of pregnant women of mixed parity. The authors of the AAQ found that women’s intensity of preoccupation with their unborn child is higher in a first pregnancy (Condon & Corkindale, 1997), so it is expected that the nulliparous women in the present study would have higher mean attachment scores than the sample of both nulliparous and multiparous women in the comparison sample.

There were no differences in mean total antenatal attachment scores between employed and not employed women at three months postpartum (78.1 vs. 78.3, NS), or at ten months (77.8 vs. 78.2, NS) postpartum, suggesting that women’s thoughts and feelings about their unborn infant so not appear to be related to their employment participation after the birth.

## **6.6.2 Mother-to-infant emotional attachment**

Postnatal mother-to-infant attachment, defined as a participant’s feelings, attitudes and behaviour towards her baby, was assessed at three and ten months by the Postnatal Attachment Questionnaire (PAQ) (Condon & Corkindale, 1998). The authors of the PAQ revealed three subscales of the PAQ: “Quality of Attachment”,

“Tolerance / Absence of Hostility” and “Pleasure in Interaction”. Higher scores on each indicate stronger affective experience of attachment, less hostility and resentment, more tolerance and greater pleasure in interaction with the infant. Only total PAQ scores are provided in the development study for this measure, as the subscales were presented with their corresponding factor loading, rather than mean scores (Condon & Corkindale, 1998). The three subscale scores for the study sample at ten months are compared with a study assessing parent-to-infant attachment using the PAQ in a community sample of American mothers (N=59) measured between 11 and 15 months (Feldstein et al., 2004). Comparisons for the total PAQ and three subscales are presented in Table 6.33.

**Table 6.33 Comparison study sample 10 month PAQ scores with relevant published data**

Scale	Study Sample N=129	Comparison Sample	Mean difference (95%CI)	P- Value
<b>Quality of Attachment, m(sd)</b>	41.8 (3.4)	41.4 (3.1)*	0.4 (-0.2, 1.0)	NS
<b>Absence of Hostility, m(sd)</b>	19.9 (3.0)	19.5 (2.7)*	0.4 (-0.1, 1.0)	NS
<b>Pleasure in Interaction, m(sd)</b>	21.5 (3.1)	20.8 (2.7)*	0.7 (0.1, 1.2)	0.02
<b>Total PAQ, m(sd)</b>	83.2 (7.5)	84.1 (6.7)**	-0.9 (-2.2, 0.4)	NS

\*(Feldstein et al., 2004), 59 women assessed 11-15 months postpartum

\*\* (Condon & Corkindale, 1998), 202 women assessed at 8 months postpartum

Although higher attachment to their unborn baby was reported by participants in this sample than in the comparison sample, postnatally study participants had a comparable quality and intensity of attachment to their infants to that observed in a comparison sample, reporting only slightly more pleasure in interaction with their infants.

The quality and intensity of women’s pre-occupation with thoughts of their unborn infant (AAQ) was moderately correlated with their three-month [ $r$  (95%CI) = 0.31 (0.15 to 0.45),  $p < 0.005$ ], and more strongly correlated with ten month [ $r$  (95%CI) = 0.41 (0.26 to 0.54),  $p < 0.005$ ] quality of their emotional bond with their child, suggesting that women’s style of emotional attachment to their infant is somewhat, but not wholly, consistent over time. Other factors are likely to be of relevance in explaining the moderate correlation observed here. For the total sample, mean total PAQ scores increased over the study period, indicating that overall, participants

experienced stronger emotional closeness to their infants at ten months than at three months after the birth [77.6 versus 83.3, mean difference (95% CI) = -5.7 (-6.7, -4.7),  $p < 0.005$ ]. This suggests that maternal capacity for affectionate, warm attachment to their infants, although likely to be influenced by individual attachment style, also grows in strength over the first postpartum year. Increasing maternal confidence and a growing capacity to recognise and respond to the infant's needs may contribute this observed strengthening attachment.

Postnatal assessment of maternal-to-infant attachment was compared for employed and non-employed women. There were no significant differences in maternal-to-infant attachment, pleasure in interaction or absence of hostility between employed (25/138, 18%) and non-employed women (113/138, 82%) three months after the birth.

At ten months, there were no differences observed according to employment status on the total PAQ scores or on the "Absence of Hostility" or "Pleasure in Interaction" subscales. There was no significant correlation between the timing of women's resumption of employment and strength of emotional bond with their infant. However, women who were not participating in employment at ten months (56/129, 43%) reported higher mean scores on the "Quality of Attachment" subscale of the PAQ [42.6 versus 41.2, mean difference (95%CI) = 1.4 (0.3, 2.6),  $p = 0.01$ ] than women who were employed (73/129, 56%). The PAQ scale is not validated against an established assessment of maternal attachment style, so it is difficult to know what measurable difference in mean scores signifies meaningful differences in maternal functioning, affectionate attachment to her infant, and whether there is an effect of this on the baby. It may be that women with a comparatively lower intensity of emotional attachment to their infant manage separation from their infant earlier in the postpartum, so are more likely to resume employment sooner. The relationship between maternal attachment and maternal separation anxiety is explored further in section 6.6.8 below.

### 6.6.3 Mother-foetal and mother-infant attachment and maternal well-being

In pregnancy, the relationship between better maternal mood and maternal-foetus attachment was complex. While there was no significant correlation between depressive symptoms assessed using the EPDS and antenatal attachment ( $r = -0.05$ , NS), several aspects of better maternal well-being, assessed by (lower) mean PoMS scores were associated with stronger maternal emotional attachment to the foetus [ $r$  (95% CI) =  $-0.21$  ( $-0.36$  to  $-0.05$ ),  $p = 0.01$ ]. Two of the PoMS subscales were negatively correlated with AAQ total scores: Depression-Dejection [ $r$  (95% CI) =  $-0.22$  ( $-0.37$  to  $-0.06$ ),  $p = 0.007$ ], and Anger-Hostility [ $r$  (95% CI) =  $-0.18$  ( $-0.33$  to  $-0.02$ ),  $p = 0.04$ ]. Women who felt more functional efficiency overall (PoMS Vigour-Activity subscale) reported a stronger emotional closeness to their growing baby [ $r$  (95% CI) =  $0.28$  ( $0.12$  to  $0.42$ ),  $p = 0.001$ ].

Postnatally, the relationship between maternal psychological well-being and maternal attachment to the infant was observed to be more consistent. The correlations between maternal mood and total PAQ scores at three and ten months are shown in Table 6.34 below.

**Table 6.34 Correlation maternal well-being measures and PAQ total score, 3 and 10 months**

Maternal Well-being	Correlation ( $r$ )	95% CI of $r$	P-Value
<b>3 months, N=138</b>			
EPDS	-0.46	-0.58 to -0.32	<0.005
PoMS	-0.59	-0.69 to -0.47	<0.005
<b>10 months, N=129</b>			
EPDS	-0.36	-0.50 to -0.20	<0.005
PoMS	-0.48	-0.60 to -0.34	<0.005

At three and ten months, women experiencing more distress and more depressive symptoms reported a less strong, affectionate attachment to their infant than those experiencing less mood disturbance. In order to clarify the direction of this effect, further sub-group analyses were performed and these are presented in section 6.6.9 below.

#### **6.6.4 Mother-infant relationship and intimate partner relationship**

Adult attachment and inter-personal relational style is partially shaped by the quality of adults' relationship with their own parents, and thought to be also influenced by experience and circumstances (Feeney et al., 2003; Feeney et al., 2001, p. 39). Attachment style is reflected in parents' capacity to establish a secure relationship with their own infant (Slade et al., 2005). It is also possible that the same attachment style is reflected in women's adult relationships, in particular with their intimate partner. Correlation analyses were performed between the total Postnatal Attachment Questionnaire (PAQ) scores, and IBM Care and Control scales.

While there were no discernible correlation between women's perceptions of their partner as controlling and intimidating and PAQ scores, there was a small positive correlation between reporting a more considerate, warm and affectionate bond with their intimate partner, and more emotional closeness to their three month [ $r$  (95% CI) = 0.19 (0.02 to 0.35),  $p = 0.04$ ] and ten month old infant [ $r$  (95% CI) = 0.27 (0.10 to 0.42),  $p = 0.05$ ]. These correlations are moderate, suggesting that factors other than women's attachment style is one of a range of factors that putatively influence maternal-infant attachment such as growing maternal confidence to provide sensitive infant care, and other sources of emotional nurturance and support.

#### **6.6.5 Maternal separation anxiety**

The maternal experience of separation anxiety has been defined as "...the concern and apprehension about leaving the child for short term separations, and may be associated with feelings of sadness, guilt or worry" (Hock et al., 1989). Maternal separation anxiety in this study was assessed by the Maternal Separation Anxiety Scale (MSAS) (Hock et al., 1989) in both postnatal questionnaires. The MSAS assesses three independent dimensions of maternal separation anxiety: global maternal separation anxiety (MSA), maternal perception of the effect of separation on the child (PSE), and employment-related separation concerns (ERSC). Mean scores for the three subscales of the MSAS are presented in Table 6.35. Ten month data from the study sample are compared with the normative data available for this measure, which

was collected at eight months postpartum in a sample of 292 American primiparous women.

**Table 6.35 Mean MSAS subscale scores compared with normative data**

	<b>3 months N=138</b>	<b>10 months N=129</b>	<b>Normative sample* (8 months) N=292</b>	<b>P-Value**</b>
<b>Maternal separation anxiety, m(sd)</b>	22.3 (4.2)	21.2 (4.4)	20.0 (3.8)	0.02
<b>Perception of separation effects on child, m(sd)</b>	15.7 (3.9)	15.5 (4.2)	13.9 (2.9)	<0.005
<b>Employment-related separation concerns, m(sd)</b>	24.5 (4.7)	24.4 (4.5)	24.5 (4.6)	NS

\* (Hock et al., 1988)

\*\*P-Value for the comparison of study sample at ten months with normative data

At ten months, participants reported more overall separation anxiety and more concern about the effect of regular separation on their infants than participants in the normative sample assessed eight months postpartum. As yet, no optimal range of scores on the MSAS have been identified, so it is difficult to comment on what range of scores on the MSAS is healthy and commensurate with a “secure attachment style”. While higher MSAS scores have been associated with more severe depressive symptoms, (Hock & DeMeis, 1990; Hock & Schirtzinger, 1992a), very low scores may indicate the absence of appropriate, affectionate and warm attachment to the infant and lack of concern for the infant’s well-being. A certain amount of concern and worry about leaving an infant for regular periods is expected and probably demonstrates a healthy maternal attachment and watchful concern over the infants’ well-being (Scher et al., 1998). The meaning of these significant differences in separation anxiety between participants and the comparison sample is difficult to qualify in the absence of Australian comparison data.

### **6.6.6 Maternal separation anxiety and employment status**

In Table 6.36 MSAS mean total, and three subscale scores are compared for employed and non-employed mothers at three and ten months postpartum.

**Table 6.36 Comparison by employment status of MSAS total and subscale scores, 3 and 10 months**

Scale	Three months		P-Value	Ten months		P-Value
	Employed N=25	Non-employed N=113		Employed N=73	Non-employed N=56	
MSAS total m (sd)	59.5	66.0	<0.005	58.6	64.5	<0.001
MSA, m(sd)	21.1 (5.5)	22.5 (3.8)	NS	20.0 (4.0)	22.9 (4.4)	<0.005
PSE, m(sd)	15.5 (4.5)	15.7 (3.8)	NS	15.3 (4.5)	15.7 (3.8)	NS
ERSC, m(sd)	23.2 (5.8)	24.8 (4.4)	NS	23.3 (4.8)	25.9 (4.3)	0.001

Higher separation anxiety was consistently observed in women who were not in the paid workforce following birth. At three months, women providing full-time infant care reported more overall separation anxiety and more concerns about leaving their infant regularly than mothers who were participating in paid work at this time. There were also significantly higher concerns about separation from their infant at three months for women who remained out of the workforce at 10 months [66.0 vs 59.5, mean difference (95% CI) = -6.4 (-9.5 to -3.3),  $p < 0.001$ ], suggesting that separation anxiety earlier in the postpartum informed employment decisions later in the postpartum year. As shown in Table 6.36, women who were out of the paid workforce at ten months also reported higher separation anxiety at ten months.

Paired-sample t-tests were conducted to ascertain any significant changes in MSAS scores between 3 and ten months for the whole sample (62.3 versus 61.2, NS), for employed women (59.4 versus 58.5, NS) and for non-employed women (66.0 versus 64.8, NS), revealing no significant differences. This suggests that the lower separation anxiety reported in employed women is not a result of repeated separations desensitising women to anxiety and separation concerns. Rather, these findings are consistent with the hypothesis that lower separation anxiety contributes to women's decision to resume employment.

MSAS scores were also significantly associated with maternal preferences for employment. Women who reported a preference for primary infant care rather than part-time employment had significantly higher MSAS scores than women indicating a preference for part-time employment at three months postpartum [64.0 versus 58.0,

mean difference (95%CI) = 5.9 (2.5 to 9.3),  $P=0.001$ ] and at ten months postpartum [64.1 versus 56.7, mean difference (95%CI) = 7.4 (4.4 to 10.3),  $p<0.001$ ]. It appears that women who have higher concern about alternative care for their infant, and find the prospect of separation distressing prefer to prolong their absence from the paid workforce to continue to care full-time for their baby.

Together, these results suggest that women's employment participation is informed by maternal separation anxiety, with lower separation anxiety consistently associated with employment resumption. Section 6.6.2 described the association between employment and comparatively lower mother-to-infant attachment, and this may also be reflected in the lower MSAS scores observed in employed women.

### **6.6.7 Maternal separation anxiety and maternal well-being**

Two previous studies have demonstrated an association between higher maternal separation anxiety and more depressive symptoms (Hock & DeMeis, 1990; Hock & Schirtzinger, 1992a). In this study, this relationship was not observed at three months postpartum when there was no significant correlation between MSAS scores and EPDS scores ( $r = 0.01$ , NS) or PoMS total scores ( $r = -0.8$ , NS). This suggests that factors other than women's separation anxiety are of greater salience to maternal mood at three months, possibly because few women have had to prepare for repeated separations at this early stage of mothering.

At ten months however, there was a modest but significant positive correlation [ $r$  (95%CI) = 0.24 (0.07 to 0.40),  $p=0.005$ ] between higher mean EPDS scores and more maternal separation anxiety (subscale one). A similar, small positive correlation was also observed between higher mean PoMS scores at ten months and higher scores on the the same maternal separation anxiety subscale [ $r$  (95%CI) = 0.19 (0.18 to 0.35),  $p=0.03$ ]. Mothers with higher separation anxiety reported more mood disturbance including more depressive symptoms. This suggests that worry, concern and anxiety about regular separation from her infant is a salient aspect of postpartum adjustment and for some women, is associated with increased depressive symptoms.



## 6.6.8 Maternal separation anxiety and maternal-infant attachment

Separation anxiety exists within the context of attachment relationships. A mother's experience of separation anxiety is likely to be influenced by her attachment style, and by the quality of her attachment relationships. It is likely then that women's separation anxiety would have a measurable, significant relationship with her attachment to her infant in pregnancy and in the postpartum.

The correlations between women's psychological bond with their baby in pregnancy, assessed using the Antenatal Attachment Questionnaire (AAQ) and at three and ten months using the Postnatal Attachment Questionnaire (PAQ), and their apprehension and concern about leaving their infant, assessed by the three-scale MSAS, are presented in Table 6.37.

**Table 6.37 Correlation Maternal Separation Anxiety subscales with maternal-infant attachment in pregnancy (AAQ) at 3 and 10 months (PAQ)**

MSAS Subscales	Correlation ( <i>r</i> )	95% CI of <i>r</i>	P-Value
	<b>Antenatal AAQ n=145</b>		
<b>MSA*</b>	0.31	0.17 to 0.45	0.001
<b>PSE*</b>	-0.20	-0.35 to -0.05	NS
<b>ERSC*</b>	0.16	0.01 to 0.31	NS
	<b>3 months PAQ, N=138</b>		
<b>MSA</b>	0.30	0.12 to 0.45	<0.005
<b>PSE</b>	0.12	-0.05 to 0.28	NS
<b>ERSC</b>	0.37	0.21 to 0.51	0.01
	<b>10 months PAQ, N=129</b>		
<b>MSA</b>	0.20	0.03 to 0.36	0.02
<b>PSE</b>	0.14	-.03 to 0.31	NS
<b>ERSC</b>	0.22	0.05 to 0.38	0.01

\*MSA: maternal separation anxiety; PSE: Perception of separation effects on the child; ERSC: employment-related separation concerns

Small to moderate significant associations were observed between participants' concern about leaving their infant for regular separations (MSA subscale), particularly for the purposes of paid employment (ERSC subscale), and stronger emotional closeness to their unborn baby, and then infant at three and ten months. These modest, rather than strong correlations suggest that maternal separation anxiety and maternal-to-infant attachment are related, but not identical, psychological constructs.

There was no significant relationship between women's concern about the effect of regular separation on their infant's well-being (PSE subscale) and the strength of their

emotional bond with their baby. It is possible that women's concern about the infants' experience while in alternative care is influenced by other factors such as cognitive appraisal of the care setting, rather than by the nature of their emotional bond to their infant.

The normal range of separation anxiety scores and maternal-to-infant attachment scores has not been identified. It seems however, that maternal separation anxiety is somewhat, but not wholly explained by the strength and quality of maternal-to-infant attachment. In order to explore this further, the characteristics and relationships between these two dimensions of the maternal-infant relationship are analysed further below.

### **6.6.9 Characteristics of lower, medium and higher maternal-infant attachment**

In order to characterise the nature and correlates of maternal-to-infant attachment at ten months postpartum better, PAQ scores were divided into three equal groups – “lower” (scores 49-80, n=43), “medium” (scores 81-87, n=44) and “higher” (scores 88-95, n=42) of maternal-infant attachment.

The socio-demographic characteristics of the three groups were not distinguishable. Chi-square tests revealed that there were no significant differences in maternal age, maternal occupational status, health insurance status, marital status, being born in Australia, or having achieved a tertiary degree between women in the lower, medium and higher attachment groups at ten months. This suggests that maternal-to-infant attachment, assessed using the PAQ, is an aspect of women's personality and attachment style within close relationships, independent of social circumstances.

One-way between-groups analyses of variance were performed for the continuous, dependent variables of maternal mood (EPDS and PoMS scores), social support, antenatal attachment (AAQ) and quality of intimate relationship (IBM) to detect any differences between participants in well-being, and in the quality of their relationships on the basis of their level of attachment to their 10 month old infant. Results of these analyses are presented in Table 6.38.

**Table 6.38 Characteristics of low, medium and high maternal-infant attachment (PAQ Scores), ten months**

Mean scores	Maternal-infant attachment, 10 months			F ( <i>df</i> , error <i>df</i> )	P-Value
	Lower N=43	Medium N=44	Higher N=42		
<b>EPDS</b>					
Pregnancy	8.8	6.5**	5.2*	F(2, 119) = 7.00	0.001
3 months	8.0	4.8**	5.1*	F(2,121) = 8.46	<0.001
10 months	8.4	6.3	5.0*	F(2,126) = 5.89	0.004
<b>PoMS</b>					
Pregnancy	43.8	20.0**	16.0*	F(2,119)= 13.76	<0.001
3 months	33.9	11.0**	10.1*	F(2,117)= 10.38	<0.001
10 months	40.5	24.2**	10.7*	F(2,125) = 9.93	<0.001
<b>Antenatal attachment (AAQ)</b>					
Total	74.7	78.7**	80.5*	F(2,118) = 9.40	0.02
Time subscale	26.7	28.1	28.4	F(2,118) = 2.15	NS
Quality subscale	48.0	50.6**	52.1*	F(2,118)= 16.12	0.001
<b>Intimate Bonds Measure (IBM)</b>					
Care	29.8	31.8	33.0*	F(2,108) = 3.47	0.04
Control	5.6	4.3	4.1	F(2,110) = 0.88	NS
<b>Social Support 10 months</b>	12.7	11.5	13.2	F(2,126) = 1.7	NS

Significant differences at the  $p \leq 0.05$  level, as per Tukey's post hoc comparisons, are indicated as follows: \*Low versus high attachment; \*\*low versus medium attachment; #medium versus high attachment.

These results highlight some of the differences between participants, based on the nature of their postnatal attachment to their infant, that were obscured by analysing the PAQ as a continuous measure. Post-Hoc tests (Tukey's HSD) revealed that the group of women with "lower" PAQ scores was most commonly distinct from either the "medium" or "higher" scoring groups. A poorer quality bond with the unborn baby during pregnancy was associated with a less affectionate attachment to the infant at ten months, even though for all participants, mean scores on the PAQ increased from three to ten months. This suggests that while the strength of maternal-infant attachment is not fixed and indeed seems to grow in strength over time, for some women, the capacity to form a warm, affectionate attachment to the infant is more difficult. The same group of women also reported a less reciprocal and caring relationship with their intimate partner than women in the "higher" maternal-infant attachment group, suggesting that the formation of reciprocal, supportive bonds is less easily attained by these participants.

Women in the “lower” attachment group consistently reported more emotional distress at all study intervals than women with medium or higher attachment to their infant. The poorer quality relationships experienced by these women could be a reflection of their attachment style. Poorer quality attachment style compromises capacity to form trusting, supportive adult relationships, and for women in this group, this may contribute to the worse postpartum mood found here.

It follows then that women with relatively high attachment to their infant at ten months can be characterised as those with the most optimal functioning, including reporting better mood, a more caring relationship with intimate partner, and a stronger attachment to the infant, that began to develop in pregnancy.

### 6.6.10 Characteristics of lower, medium and higher maternal separation anxiety

Participants’ mean scores on the MSAS were divided into three equal categories. Out of a possible score of 21-105, the “lower” scoring group (n=43) had scores ranging from 21-58; 44 (34%) women had score in the “medium” range, from 59-65, and forty-two women in the “higher” groups had scores ranging from 65-88.

Unlike the three postnatal attachment groups described above, there were several socio-demographic differences between the lower, medium and higher groups of MSAS scores, as presented in Table 6.39.

**Table 6.39 Socio-demographic comparisons between lower, medium and higher Maternal Separation Anxiety Scale (MSAS) scores (10 months)**

	Maternal Separation Anxiety, 10 months			Test and Test Statistic	P- Value
	Lower N=43	Medium N=44	Higher N=42		
<b>Maternal age yrs</b>	31.6	32.1	31.2	<i>Anova</i> F(2,126)= 0.09	NS
<b>Married, n (%)</b>	34 (79)	28(64)	29(69)	$\chi^2_2 = 0.28$	NS
<b>Australian born, n(%)</b>	35(81)	29(66)	30(71)	$\chi^2_2 = 0.28$	NS
<b>University degree, n(%)</b>	39(91)	25(57)	24(57)	$\chi^2_2 = 15.04$	0.001
<b>ASCO 1-3*, n(%)</b>	39 (90)	26(60)	29(68)	$\chi^2_2 = 9.56$	0.008
<b>Privately insured, n(%)</b>	26(60)	11(25)	21(50)	$\chi^2_2 = 11.69$	0.003

\*ASCO 1-3 include Managers, Professionals and Associate Professionals (Australian Bureau of Statistics, 1997a)

There were no significant differences between the three groups in maternal age, marital status or being Australian born versus being born overseas. However, there

were significantly more women in the “lower” maternal separation anxiety group who had attained a tertiary qualification, who were occupied in a high status professional occupation than women with “medium” or “higher” separation anxiety. More women with private health insurance were in the “lower” group than those with “medium” or “higher” MSAS scores. Unlike maternal-to-infant attachment, maternal separation anxiety appears to be influenced to a substantial degree by social circumstances, with lower separation anxiety reported by those who were socio-economically advantaged.

One-way between groups analyses of variance were performed for the continuous, dependent variables of maternal mood (EPDS and PoMS scores), antenatal attachment (AAQ), available social support, postnatal mother-to-infant emotional attachment (PAQ) and quality of intimate relationship (IBM) to detect any differences between participants in well-being, and in the formation of attachment relationships on the basis of their level maternal separation anxiety. Results of these analyses are presented in Table 6.40.

**Table 6.40 Characteristics of lower, medium and higher maternal separation anxiety (MSAS Scores), ten months**

Mean scores	Maternal separation anxiety 10 months			F (df)	P- Value for ANOVA
	Lower N=43	Medium N=44	Higher N=42		
<b>EPDS</b>					
Pregnancy	6.3	7.5	6.7	F(2,119) = 0.74	NS
3 months	6.1	6.0	5.8	F(2,120) = 0.05	NS
10 months	6.7	6.0	6.9	F(2,126) = 0.44	NS
<b>PoMS</b>					
Pregnancy	23.8	31.7	24.5	F(2,119) = 0.96	NS
3 months	20.0	20.0	14.7	F(2,119) = 0.45	NS
10 months	27.5	24.2	23.6	F(2,125) = 0.17	NS
<b>Antenatal attachment (AAQ)</b>					
Total	76.1	77.6	80.2*	F(2,118) = 4.1	0.01
Time subscale	26.9	27.8	28.6	F(2,118) = 1.9	NS
Quality subscale	49.2	49.9	51.6*	F(2,118) = 4.6	0.01
<b>Postnatal Attachment (PAQ) 3 months</b>					
Total	74.1	78.5**	80.3*	F(2,118) = 8.52	<0.001
Quality of attachment	40.0	40.1	42.1*	F(2,119) = 4.50	0.01
Absence of Hostility	18.7	20.0	20.1	F(2,119) = 3.00	NS
Pleasure in Interaction	20.3	22.5**	23.2*	F(2,118) = 12.86	<0.001
<b>Postnatal Attachment (PAQ) 10 months</b>					
Total	80.9	83.4	85.4*	F(2,126) = 4.16	0.02
Quality of attachment	41.0	41.7	42.8*	F(2,126) = 3.27	0.04
Absence of Hostility	19.5	20.0	20.3	F(2,126) = 0.79	NS
Pleasure in Interaction	20.4	21.8	22.3*	F(2,126) = 4.57	0.01
<b>Intimate Bonds Measure (IBM)</b>					
Care	32.3	29.6	32.5	F(2,108) = 3.52	0.03
Control	4.2	5.4	4.4	F(2,110) = 0.48	NS
<b>Social Support 10 months</b>	13.7	11.5**	12.1	F(2,126) = 3.27	0.04

Significant differences at the  $p \leq 0.05$  level, as per Tukey's post hoc comparisons, are indicated as follows: \*Low versus high separation anxiety; \*\*low versus medium separation anxiety; #medium versus high separation anxiety.

These results demonstrate that women reporting lower separation anxiety are characterised by a less strong emotional attachment to their foetus in pregnancy, and to their three and ten month old infant in the postpartum. Women with lower separation anxiety at ten months had less affectionate, caring thoughts about their unborn baby during pregnancy than women with either medium or higher postpartum separation anxiety. In the postpartum assessments, women with lower separation

anxiety also reported a less warm emotional attachment to their infant than women with higher separation concerns, and at three months, experienced slightly but significantly less pleasure in interactions with their baby than women reporting medium or higher separation anxiety. These results suggest that higher maternal concerns and separation anxiety are indicators of a close, loving, affectionate emotional attachment to her infant, one that begins to develop in pregnancy, and continues to grow following birth. Similarly, there were between-group differences in the 'care' dimension of the intimate partner relationship, suggesting that maternal separation anxiety is related to the quality of women's attachment relationships. Maternal separation anxiety seems to be related to the nature of attachment to the infant, but unlike mother-infant attachment, is also influenced by external circumstances.

There were no differences between women reporting lower, medium or higher separation anxiety on assessments of psychological well-being. It appears that separation anxiety is distinct from the dimensions of maternal well-being accounted for in this study, including depression and anxiety. Rather, maternal separation anxiety is shaped by a combination of factors, influenced by the nature of the mother-infant relationship, but also by social circumstances, in particular socio-economic position.

## **6.7 PREGNANCY, BIRTH AND POSTNATAL HEALTH**

### **6.7.1 Pregnancy and Birth**

Information about pregnancy events, the birth, mode of delivery and baby's gestational age at delivery were collected in the three month postnatal questionnaire.

The majority (99/138, 72%) of women reported no complications during pregnancy. Twelve women (9%) reported bleeding in pregnancy, 8 (6%) high blood pressure and / or pre-eclampsia, 3 (2%) gestational diabetes, 3 (2%) had placenta praevia, and 10 women (8%) reported chronic conditions that existed prior to pregnancy such as asthma and diabetes. Twenty participants (14%) were hospitalised during pregnancy for a mean duration of 3 days (range 1-40 days). Reasons given for hospitalisation

included pre-eclampsia (n=7); placenta praevia (n=3); bleeding (n=1) and one participant had threatened pre-term labour. The remaining eight participants did not report their reason for hospitalisation.

Obstetric and neonatal outcomes for participants are reported in Table 6.41, and compared to all Victorian births in 2006.

**Table 6.41 Birth information for participants compared with all Victorian Births, 2006**

	Study Sample	Vic mothers 2006*	P-Value
Unassisted vaginal birth, n(%)	46 (33)	36548 (56)	<0.001
Assisted vaginal delivery, n(%)	47 (34)	8787 (13)	<0.001
Caesarean section, n(%)	45 (32)	19780 (30)	NS
Female infant, n(%)	60 (43)**	33659 (48)	0.001
Weeks gestational age at birth, m(sd)	39.7 (1.5)	-	-
Preterm birth (<37 weeks), n(%)	8(6)	4837(7)	NS
Birth weight grams, m(sd)	3430 (490)	-	-
Low birth weight (<2500 grams), n(%)	4(3)	4665 (7)	0.02

\* Davey et al., Births Victoria, 2005 and 2006

\*\*includes one set of female twins

Compared to all Victorian births in 2006, participants were more likely to have an assisted vaginal delivery rather than an unassisted vaginal birth, but were no more likely to have a caesarean section. Fewer of the study infants were born at a low birth weight of less than 2500 grams.

### 6.7.2 Postnatal health

Participants were asked to rate their physical health following birth at both three and ten months postpartum using the global measure of health item from the *Medical Outcomes Study Short-Form 36* (SF-36) (Ware & Kosinski, 1994). This item asks participants to rate their general health since the birth as “excellent”, “very good”, “good”, “fair” or “poor”. Table 6.42 presents the distribution of participants’ self-rated health, compared at three and ten months postpartum. The proportions of women in each health category were similar at three and ten months ( $\chi^2_4 = 0.17$ ,  $p=NS$ ).



**Table 6.42 Self-rated health at three and ten months postpartum**

SF-36 Health rating	3 months postpartum (N=136)		10 months postpartum (N=129)	
	N	%	N	%
Excellent	47	35	32	25
Very good	43	32	46	35
Good	30	21	32	25
Fair	13	10	16	13
Poor	3	2	3	2

The SF-36 global rating of health item used in this study is also commonly used as a continuous measure (Australian Bureau of Statistics, 1995), where mean scores are between 1-5, with higher scores indicating better self-rated health. There was a small but significant decline in participants' self-rated health between three and ten months. Lower scores indicate worse physical health at ten months [3.9 compared with 3.7, mean difference (95% CI) = -0.22(-0.4, -0.03), p=0.02].

At ten months, participants were also asked whether they had experienced any health problems since the birth, and if so, to describe the problem(s). Thirty eight per cent (49/129) of participants reported that they had experienced a health problem since the birth of their baby. The types of problems reported are presented in Table 6.43.

**Table 6.43 Health problems occurring since the birth, reported at ten months postpartum**

Health problem at ten months	Participants with health problem (N=49/129)	
	N	%
Birth related complications (infection, postpartum haemorrhage, perineal trauma, retained placental tissue).	17	13
Bowel and bladder continence problems	3	2
Skeletal problems (back and joint pain)	9	7
Self-reported depression	3	2
Fatigue and exhaustion	7	5
Pre-existing chronic illnesses (eg: diabetes, asthma, Crohn's disease, kidney problems)	6	4
Miscarriage	2	1
Cancer diagnosed since birth	2	1

### 6.7.3 Postnatal health and employment status

Most Australian women report one or more health complaint(s) in the first six months following childbirth (Brown & Lumley, 1998, 2000). One of the aims of the present study was to investigate the relationships between postnatal physical health and employment participation.

Birth by caesarean section generally requires a longer postnatal recovery period, so it might be expected that women who had a caesarean birth might prolong their absence from the workforce. However, there were no significant differences in employment status between women who had a vaginal birth (n=93) compared to women whose baby had been born by caesarean-section at either three (21% versus 13%, NS) or ten (58% versus 56%, NS) months postpartum. The mean time of employment resumption for employed participants who returned to the paid workforce during the study period was 29 weeks (7 months), so it might be assumed that most participants would have recovered physically from birth prior to their employment resumption.

At three and ten months, several indicators of physical health were compared for employed and non-employed participants. The results of these comparisons are presented in Table 6.44.

**Table 6.44 Physical health compared for employed and non-employed participants, 3 and 10 months**

Physical health assessment	3 months			10 months		
	Employed N=25	Non- Employed N=113	P- Value	Employed N=73	Non- Employed N=56	P- Value
SF-36 mean score*	3.4	4.0	0.03	3.6	3.8	NS
Reporting health problem** n(%)	–	–	–	27(38)	23(41)	NS
Felt physically ready to work	84%	63%	0.05	68(93)	43(77)	0.008

\*higher scores indicate better physical health

\*\*Not asked at 3 months

At three months, women who had not resumed their employment reported better physical health on the SF-36 item than women who had resumed employment,

suggesting that a longer time for recovery from birth prior to employment resumption is of benefit to women's physical well-being. There were no differences between employed and non-employed women on the same item at ten months postpartum, nor any differences in the proportion of women reporting health problems at ten months between those in employment and those in full-time infant care. Significantly more employed women reported that they felt physically ready to work at their job than non-employed women at three and ten months.

#### **6.7.4 Postnatal health and emotional well-being**

Previous studies have established an association between maternal postnatal physical health, and emotional well-being (Brown & Lumley, 2000; Da Costa, Dritsa, Rippen, Lowenstyn, & Khalife, 2006; Howell, Mora, & Leventhal, 2006). In this study, the association between maternal emotional well-being and postnatal health status assessed by the SF-36 continuous item of global physical health was examined. At three months, there was a significant correlation between better reported physical health status and fewer depressive symptoms on the EPDS [ $r$  (95% CI) = -0.30 (-0.45 to -0.14),  $p=0.005$ ] and the PoMS total scores [ $r$  (95% CI) = -0.21(-0.37 to -0.04),  $p=0.01$ ]. This difference was maintained at ten months postpartum, as similar moderate correlations were noted for both the EPDS [ $r$  (95% CI) = -0.35 (-0.49 to -0.19),  $p<0.005$ ] and the PoMS total score [ $r$  (95%CI) = -0.39 (-0.53 to -0.23),  $p<0.005$ ].

### **6.8 INFANT FACTORS**

#### **6.8.1 Infant behaviour**

At both three and ten months, participants were asked to rate their infant's behaviour on a ten-point visual-analogue scale, where 0 = "easy", and 10 = "difficult" infant behaviour. Scores on this item at three and ten months were significantly positively skewed (kurtosis = 7.9 and 3.7 respectively), with 76% (126/138) mothers rating their infant behaviour as "easy" (scores between 1-3 on the visual analogue scale). Median score at three months was 2.0 (range 0-10), and at ten months, 1.5 (range 0-10).

There were also no significant differences between employed and non-employed women's ratings of infant behaviour at three (median 2.0 versus 2.0) or ten months (median 1.0 versus 2.0). Wilcoxon Rank Test revealed no significant change in all participant's ratings of infant temperament between 3 and 10 months after the birth (median 2.0 versus median 1.5, NS).

Correlations (*rho*) between infant behaviour scores and maternal emotional well-being were conducted for both postnatal assessments. At three months, rating the infant as more "difficult" was associated with more maternal distress assessed by the EPDS (*rho* = 0.20, *p*=0.02) and the PoMS (*rho* = 0.16, *p*=0.05). At ten months similar associations were observed on the EPDS (*rho* = 0.23, *p*=0.008), and the total PoMS (*rho* = 0.24, *p*=0.005) scores, indicating a moderate association between poorer emotional well-being and more difficult infant behaviour.

### **6.8.2 Infant feeding**

Ninety-six per cent of participants (159/166, 96%) reported antenatally an intention to breastfeed their infant in the weeks and months following the birth. Sixty-one per cent (101/166) of participants intended to feed their baby for at least six months. Thirty women in the present sample (18%) reported that they were intending to breastfeed "for as long as possible". Nine women (5%) planned to maintain breastfeeding for between 4-6 months, 11 (7%) for 1-3 months, and the remainder planned to combine breastfeeding with bottle-feeding (5/166, 3%), breastfeed for an unspecified length of time (3/166, 2%), or bottle-feed exclusively (4/166, 2%). Three women were uncertain as to how they were planning to feed their baby following the birth.

Ninety-nine per cent (137/138) of respondents initiated breastfeeding after the birth. By three months, 84% (116/138) of participants were breastfeeding their infants. Sixty-four per cent (84/129) of participants were breastfeeding at six months, similar to antenatal intention. At ten months, 45% (58/129) of infants were receiving some breastmilk. Of those who had ceased breastfeeding at or before completing the ten month questionnaire (55%), the mean (sd) duration of breastfeeding was 24.7 (13.4) weeks, range 0-47 weeks.

The study sample had higher rates of breastfeeding initiation and duration than reported in other studies (Donath et al., 2003; Forster et al., 2006), probably due to the established strong association between the high educational attainment, and socio-economic advantage in this sample compared with population data, and increased breastfeeding rates (Donath & Amir, 2000).

Of the 25 women employed at three months, 18 (72%) reported that their current infant feeding method was either “somewhat” or “mostly” determined by their paid work commitments. At ten months, 36 of the 73 employed women (49%) reported the same. Comments indicated that some women reduced or ceased breastfeeding in preparation for resuming employment.

Trying to give baby bottle 1/day but baby reluctant despite having bottles since birth. Often this bottle is formula, will wean because of increasing work commitments. (Doctor, 34 years, 3 months postnatally)

Dropped breastfeeds and only breastfeed now in morning. (Bank Teller, 27 years, 3 months postnatally)

Had to wean him off breastmilk for bottle. My job can be very stressful and tiring even if it is a part-time job. (Sales representative, 34 years, 10 months postnatally)

I trained my baby to formula feeding prior to returning to work. (Nurse, 30 years, 10 months postnatally)

Other comments provided were about the difficulty of sustaining breastfeeding once women had resumed employment.

I express my breastmilk. If am unable to express enough to store in freezer I substitute with formula. (Receptionist, 30 years, 3 months postnatally)

I have to pump express milk for baby and therefore the amount of breast milk has reduced considerably. (Manager, 35 years, 3 months postnatally)

Initially I expressed at work for 3.5 months and breastfed day and night, but I was so exhausted I almost collapsed in a heap so decided to breastfeed morning and night and then formula in the day. I hated myself for it and felt very guilty but couldn't produce enough milk as I was very tired. (Diplomat, 32 years, 10 months postnatally)

At three months, there were no significant differences between the proportion of women continuing breastfeeding between employed and non-employed participants (76% versus 86%, NS). At ten months however, women who had resumed employment were significantly less likely to be breastfeeding their infants than those occupied primarily in infant care (33% versus 59%,  $p=0.004$ ). For the 73 women who were employed at or before ten months postpartum, there was a large, positive correlation between breastfeeding duration, and length of absence from the workforce following the birth [ $r$  (95%CI) = 0.77 (0.66 to 0.85),  $p = 0.04$ ]. It is not known from this association however whether breastfeeding cessation precedes the resumption of employment, or whether employment leads ultimately to weaning.

Several studies have found an association between maternal depressive symptoms, and shorter breastfeeding duration (Henderson et al., 2003; McLearn et al., 2006). In the present sample, there were no significant differences in emotional well-being between mothers who were and were not breastfeeding at three months, in EPDS scores (5.8 versus 7.0, NS) or PoMS scores (18.0 versus 20.9, NS). At ten months, there was a significant difference in the EPDS scores between women who were and were not continuing to breastfeed their infants [5.6 versus 7.3, mean difference (95% CI) = 1.7 (0.01, 3.3),  $p= 0.05$ ], with more depressive symptoms present in those women who were no longer breastfeeding. There were no differences in PoMS scores according to breastfeeding status at ten months (28.9 versus 20.3, NS).

### **6.8.3 Child care**

During pregnancy women were asked about their plans (if any) for non-parental childcare specifically for their own employment purposes in the first year following the birth of their baby. Ninety-one women (55%) intended to care for their infant themselves (81/166, 49%) or share the care with their partner (10/166, 6%). Forty-nine women (30%) planned on using regular care from a friend or relative and in most cases (43/49, 88%), this care was to be provided by grandparent(s). Few participants (4/166, 2%) were planning to employ a paid “nanny” or babysitter to care for their infant in their own home. Nineteen women (11%) intended to use centre-based care, and three women were undecided about their plans for alternative childcare. Women

who reported that they intended to use non-parental care for their infants in the first postpartum year were significantly more likely to be employed at ten months after the birth than women who had no plans for childcare use (74% versus 44%,  $p < 0.005$ ). Of the women who intended during pregnancy to resume employment in the first postnatal year, 74% (61/82) felt “somewhat worried” or “very worried” about leaving their baby in order to resume employment.

The main forms of childcare used by employed women when infants were three and ten months of age are presented in Table 6.45.

**Table 6.45 Primary form of childcare used by employed women, 3 and 10 months**

Arrangement	Three months N=25	Ten months N=73
Maternal care only*, n(%)	9 (36)	3 (4)
Partner care, n(%)	2 (8)	13 (18)
Friend / relative (unpaid), n(%)	10 (40)	22 (30)
“Nanny” / babysitter (paid), n(%)	3 (12)	3 (4)
Centre-based day care (paid), n(%)	1 (4)	32 (44)

\*Women who were working at a job, whilst simultaneously caring for their baby

More women were conducting their employment simultaneously while caring for their infant at three months than at ten months, and the use of centre-based childcare became more common later in the postpartum year. At ten months, infants were spending a mean (sd) of 23.6 (11.5) hours per week in non-maternal care, and over half of employed mothers (38/73, 52%) reported using more than one type of regular alternative care for their infant.

At three months, 40% (10/25) of employed participants reported that childcare was not available to them when they required it, nor was it affordable for themselves and their family (10/25, 40%). By ten months, however, most employed participants reported that non-parental childcare was available (62/73, 85%) and affordable (63/73, 86%). Sixty-four per cent of employed women at three months (16/25) and 79% at ten months reported that they were happy with the regular infant care that their child was receiving. No participants provided further comments about their feelings or experience about childcare.

Of women not employed at ten months (N= 56), 55% (31/56) reported that one of the reasons they were not in paid employment was that they were unable to find suitable child care for their infant (see section 6.3.2.3, Table 6.12). However, there were no associations between this reason for being out of the workforce and maternal emotional well-being (reported in section 6.5.3). Overall, by ten months, employed participants found child care to be accessible, affordable and acceptable.

## 6.9 UNPAID DOMESTIC LABOUR

During pregnancy, participants reported that they expected to perform a mean (sd) of 16.3(5.4) hours of direct infant care each day in the first three months following the birth (range 3-24 hours).

At three and ten months, participants reported the number of hours in each 24 hour period they were engaged in housework (laundry, shopping, cooking), infant care (feeding, settling, changing), sleeping and leisure time (either with or without baby) as presented in Table 6.46. Participants reported that they performed significantly fewer total hours of infant care each day in the first three months after the birth than they had anticipated antenatally, [8 hours compared with 16.3 hours, mean difference (95% CI) = 8.03 (6.97, 9.08),  $p < 0.005$ ].

**Table 6.46 Comparison of infant care, domestic work, leisure and sleep time between 3 and 10 months**

Activity	3 months N=138	10 months N=129	Mean difference (95% CI)	P-Value
Infant care hours, m(sd)	8.3 (3.1)	5.9 (2.7)	2.74 (2.05, 3.42)	<0.005
Housework hours, m(sd)	3.0 (1.1)	3.3 (1.2)	-0.33 (-0.58, -0.09)	0.007
Leisure time hours, m(sd)	3.3 (1.9)	3.0 (1.9)	0.43 (0.02, 0.83)	0.04
Sleeping hours, m(sd)	7.1 (1.5)	7.2 (1.3)	-0.16 (-0.47, 0.15)	NS

While women performed less infant care per day as their baby got older, they were engaged in more domestic work and had less discretionary leisure time at ten months than at three months postpartum.



Hours of domestic labour, infant care, leisure and sleep time were compared for employed and non-employed women at ten months postpartum. The results are presented in Table 6.47.

**Table 6.47 Comparison of infant care, housework, leisure and sleeping by employment status at ten months**

Activity	Employed women N=73	Non-employed women N=56	Mean difference (95% CI)	P-Value
Infant care hours, m(sd)	5.6 (2.8)	6.3 (2.6)	0.75 (-0.20, 1.7)	NS
Housework hours, m(sd)	2.9 (1.1)	3.7 (1.2)	0.82 (0.42, 1.23)	<0.005
Leisure time hours, m(sd)	2.5 (1.5)	3.6 (2.2)	1.01 (0.32, 1.70)	0.005
Sleeping hours, m(sd)	7.2 (1.2)	7.3 (1.5)	0.15 (-0.30, 0.61)	NS

Colloquially, women occupied in full-time infant care are described as having “time off”, or as “not working”. However, at ten months post-partum, non-employed women were performing significantly more domestic labour and infant care each day than women who were employed.

Three months after the birth, approximately half the participants (75/138, 54%) felt that housework and baby care tasks were mostly their own responsibility, and the remainder described these same tasks as a shared responsibility (63/138, 46%). No participant responded that their partner had the main responsibility for housework and infant care. Respondents’ perceptions of their partners’ contribution to household and baby care at three and ten months are presented in Table 6.48. One in three women at both time points reported that their partner contributed “too little” to the domestic workload and infant care.

**Table 6.48 Participants views about partners’ contribution to housework / infant care**

Response	Three months N=138	Ten months N=129
N/A, no partner, n(%)	11 (8)	10 (8)
Too little, n(%)	37 (27)	41 (32)
Exactly enough, n(%)	86 (62)	72 (56)
Too much, n(%)	4 (3)	6 (5)

Sixty-six per cent of partnered participants at three (84/127) and ten (79/119) months reported that they were “satisfied” with their partner’s domestic contribution since the birth. Employed women were as likely to be satisfied with their partners’ contribution to domestic work as non-employed women at ten months (62% versus 61%, NS). There were not enough employed participants at three months to make this comparison.

At both three [ $r$  (95% CI) = -0.56 (-0.78 to -0.21),  $p=0.005$ ] and ten months [ $r$  (95%CI) = -0.35 (-0.54 to -0.13),  $p=0.002$ ] there was an association between being employed for more hours per week and performing fewer hours of infant care and housework each day. This is not unexpected, because while women are employed outside of the home, another carer would, by necessity, provide infant care.

Emotional support from partner and peers are established protective factors against postnatal mood disturbance (Scottish Intercollegiate Guidelines Network, 2002). It is less well established whether practical support with housework and baby care from one’s partner in the postpartum period is similarly protective. In the present sample, women who were satisfied with their partner’s contribution to both housework and babycare at ten months (79/119, 61%) had significantly less mood disturbance than those reporting dissatisfaction with their partner’s contribution assessed using the EPDS [5.3 versus 8.4, mean difference (95% CI) = 3.1 (1.4, 4.8),  $P=0.001$ ] and the PoMS [17.4 versus 37.1, mean difference (95% CI) = 19.7 (7.3, 32.1),  $p=0.002$ ]. Receiving practical support from an intimate partner in the postnatal period was associated with less mood disturbance in this study.

## **6.10 DETERMINANTS OF POSTNATAL EMPLOYMENT PARTICIPATION**

One of the main aims of this study was to explore the determinants of maternal employment status (employed versus full-time infant care) in the first ten months following birth. At ten months, 57% (73/129) of participants in this study had resumed employment. It was hypothesised that a broad range of workplace and psychosocial factors, including job characteristics and access to maternity

entitlements, women’s intentions and preferences, personal circumstances and maternal separation anxiety would contribute to mothers’ employment decisions. Univariate associations between participation in employment at ten months following birth and variables of interest have been reported in the relevant sections throughout this Chapter. A list of the variables that have a demonstrated relationship with being employed at ten months postpartum in this sample, at a significance level of  $p \leq 0.05$ , is summarised in Table 6.49.

**Table 6.49 Variables associated with participating in paid employment at ten months postpartum**

<b>Variable</b>	<b>P-Value</b>
Pregnancy intention to resume postnatal employment	0.004
Feeling emotionally ready for employment, 3 and 10 months	0.001
High career salience antenatally (agreeing that “my life would not be complete without a job” in pregnancy)	0.02
Not, or no longer, breastfeeding	0.004
Preference for part-time employment over full-time infant care	0.005
Lower maternal separation anxiety (total MSAS), 3 months	<0.005
Lower maternal separation anxiety (total MSAS), 10 months	<0.001
Less intense emotional attachment to infant (lower ‘PAQ Quality of Attachment’ subscale score), 10 months	0.01

In order to determine which of these factors made significant, independent contributions to women’s employment participation at ten months, binary logistic regression was performed on the binary outcome of maternal employment participation at ten months to assess the relative contribution of each of these psychosocial variables. In addition to the variables listed in Table 6.49, several maternal characteristics have been found in Australian studies to be associated with the increased likelihood of maternal postpartum employment including maternal age over 30 years, having access to paid maternity leave, higher educational attainment and higher occupational status (Baxter, 2005a; Gray & McDonald, 2002). These characteristics were also adjusted for in the model as they are potential confounding factors associated with employment participation following birth.

The results of this binary logistic regression, modelling the determinants of maternal postnatal employment at ten months, are presented in Table 6.50. Results are

presented as the Odds Ratio for the indicated category, with the reference category provided first in the list, in brackets.

**Table 6.50 Determinants of postnatal employment participation at ten months for the total sample (N=116)**

Variable	B	Adjusted Odds Ratio (OR)	95% CI for OR	P-Value
<b>Maternal age</b> [< 30 years] > 30 yeaes	0.39	1.48	0.46 to 4.82	0.51
<b>Education</b> [No tertiary education] University degree	0.72	2.06	0.63 to 6.80	0.23
<b>Occupational status</b> [Service, Sales, Clerical, Trade] Manager / Associate Professional	0.47	1.60	0.45 to 5.65	0.47
<b>Access to paid maternity leave</b> [No] Yes	0.73	2.07	0.73 to 5.84	0.17
<b>Pregnancy intention to resume</b> [No] Yes	0.98	2.65	0.90 to 7.84	0.08
<b>Emotional readiness to work at a job</b> [No] Yes	0.54	1.72	0.51 to 5.88	0.39
<b>High career salience</b> [No] Yes	0.89	2.44	0.85 to 6.95	0.10
<b>Breastfeeding at ten months</b> [No] Yes	-1.50	0.22	0.08 to 0.62	0.004
<b>Preference for (part-time) work</b> [No] Yes	1.70	5.50	1.80 to 16.77	0.003
<b>Maternal separation anxiety*</b> [High] Low	1.44	4.22	1.32 to 13.55	0.01
<b>Quality of Attachment to infant **</b> [High] Low	0.30	1.34	0.45 to 4.02	0.60

\*Maternal Separation Anxiety Scale (Hock et al., 1989)

\*\* Parental Attachment Questionnaire subscale "Quality of attachment" (Condon & Corkindale, 1998)

Overall, this set of predictor variables accounted for 49% (Nagelkerke R-square = 0.492) of the variability in employment participation at ten months postpartum. The full model was statistically significant [ $X^2_{11} = 53.60, p < 0.001$ ], suggesting that this set of predictors is able to distinguish between women who were and were not employed

at ten months postpartum. Seventy-eight per cent of women were correctly classified as either employed or in full-time infant care by this model.

Three of the independent variables made were uniquely, independently associated with the likelihood of maternal employment. Maternal preference for part-time employment is a strong determinant of employment following the birth of a first baby (OR = 5.5,  $p=0.003$ ). The likelihood of being employed at ten months postpartum was over five times more likely for women who expressed a preference for part-time employment (<35 hours per week) in the postpartum than those preferring to remain in primary infant care, when all other independent factors in the model are adjusted for.

Mothers who were breastfeeding their infants were significantly less likely to be employed (OR = 0.22,  $p=0.004$ ) than mothers of infants who were not continuing to breastfeed at ten months postpartum. The direction of this effect is unclear. Approximately 70% of Australian women, by ten months, have ceased breastfeeding their infants (Donath & Amir, 2005). It is not possible to ascertain whether mothers ceased breastfeeding specifically to prepare for employment resumption, or whether breastfeeding cessation occurred spontaneously, independent of employment plans or because of them. However, the qualitative comments offered by women in this study (section 6.8.2) suggest that resuming employment constrained breastfeeding continuation.

Women who reported lower or medium maternal separation anxiety were over four times more likely (OR = 4.2,  $p=0.01$ ) to be employed at ten months than women expressing higher separation anxiety. In this sample, women with lower separation anxiety were characterised by a less affectionate, less strong attachment to their unborn baby in pregnancy, and to their infant following birth. It appears then that the developing mother-infant relationship is relevant to women's thoughts feelings and anxiety about separation, which in turn substantially influence their employment decisions in the first year following birth.

## **6.11 DETERMINANTS OF MATERNAL WELL-BEING**

The second aim of this study was to assess the relative contribution of employment-related circumstances and arrangements, adjusting for known predictors of perinatal mood, to maternal emotional well-being. It was hypothesised that mothers who were more satisfied with their current arrangements (whether employed or not) would have better emotional well-being than those who were dissatisfied with current arrangements as assessed by the study-specific composite measure, the “Maternal Satisfaction Index” (MSI). The primary outcome measures for this hypothesis were the two standardised assessments of maternal well-being, the EPDS, and the PoMS total score.

### **6.11.1 Determinants of antenatal emotional well-being**

Antenatally, several employment and psychosocial characteristics were associated with emotional well-being assessed by the EPDS and PoMS standardised measures. Experiencing workplace adversity during pregnancy including pregnancy-related discrimination, lack of access to maternity-related entitlements and difficulty negotiating leave with employer were associated with poorer antenatal mood. Linear regression was performed to assess the relative contribution of workplace adversity to maternal mood, adjusting for known predictors of antenatal mood including socio-economic position, educational attainment, occupational status, and mothers’ emotional attachment to their unborn infant. Results of regression analyses on the EPDS and the PoMS are presented in Tables 6.51 and 6.52.

**Table 6.51 Factors associated with maternal mood (EDS) in pregnancy (n=145)**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-2.43	-4.16 to -0.70	-0.26	0.006
<b>Managers, Associate/Professionals</b> [No] Yes	-0.55	-2.56 to 1.45	-0.06	0.59
<b>University education</b> [No] Yes	0.86	-0.99 to 2.70	0.09	0.36
<b>Total AAQ scores*</b>	-0.07	-0.19 to 0.04	-0.10	0.22
<b>Workplace adversity</b> [No] Yes	1.65	0.04 to 0.34	0.16	0.04

\*Antenatal Attachment Questionnaire (Condon, 1993), higher scores indicate greater maternal-foetal attachment

This model, although significant, accounted for only a small amount of variance in the EPDS [R-squared = 0.116, F(5) = 3.56, p=0.005]. Being privately insured, and not experiencing any workplace adversity during pregnancy were the only two independent factors significantly associated with experiencing fewer depressive symptoms antenatally. It is notable that experiencing workplace adversity was associated with reporting heightened depressive symptoms when other known determinants of poor maternal well-being were controlled for.

Different factors were observed to make an independent contribution to maternal well-being when assessed by the antenatal PoMS, as presented in Table 6.52.

**Table 6.52 Factors associated with maternal mood (PoMS) in pregnancy (n=145)**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-12.60	-23.44 to -1.76	-0.21	0.02
<b>Managers, Associate/Professionals</b> [No] Yes	-2.80	-15.31 to 9.07	-0.04	0.66
<b>University education</b> [No] Yes	10.46	-1.11 to 22.03	1.79	0.07
<b>Total AAQ scores*</b> [No] Yes	-1.13	-1.85 to -0.42	-0.25	0.002
<b>Workplace adversity</b> [No] Yes	9.18	-1.42 to 19.77	0.14	0.09

\*Antenatal Attachment Questionnaire (Condon, 1993)

Only a small amount of variance in PoMS total scores was accounted for by this model [R-squared = 0.136, F(5) = 4.294, p=0.001].

The PoMS, although highly positively correlated with the EPDS, assesses different dimensions of psychological functioning, which may explain the different associations to EPDS scores noted in this sample at the antenatal assessment. Workplace adversity had a similar association with PoMS scores as with EPDS scores ( $\beta = 0.14$  and  $\beta = 0.14$  respectively), but only approached conventional levels of significance in the model with PoMS as the primary outcome. However, women who were not privately insured had significantly worse mood than women with private health insurance, suggesting that lower socio-economic position makes a strong independent contribution to poorer psychological functioning in pregnancy. Insecure income, and the change in life circumstances that accompany the birth of an infant may explain some of women's distress and anxiety at this time.

Women reporting lower emotional attachment to their unborn baby antenatally had higher PoMS scores indicating greater mood disturbance. These data were collected in advanced pregnancy, at a mean gestational age of almost 30 weeks. It would be expected at this stage in the last trimester, women's thoughts and feelings for their



infant would be predominantly affectionate, strong in intensity and frequent. It appears from this analysis however that women who report less optimal antenatal attachment to their infant also report comprised mood and poorer overall psychological functioning.

### 6.11.2 Postnatal emotional wellbeing

There were strong univariate associations between maternal postnatal well-being (EPDS and PoMS scores) and several employment, social and personal factors assessed in this study. Those that have a demonstrated association with EPDS and/or PoMS scores at three and ten months are listed in Table 6.53.

**Table 6.53 Factors demonstrating a significant univariate association with postnatal maternal emotional well-being**

Variable	3 month EPDS	3 month PoMS	10 month EPDS	10 month PoMS
Private health insurance	NS	$t = 2.79$ $p=0.006$	$t = 2.51$ $p= 0.01$	$t = 2.34$ $p=0.02$
MSI scores (maternal satisfaction index)	$r = - 0.53$ $p<0.005$	$r = - 0.56$ $p<0.005$	$r = - 0.65$ $p<0.005$	$r = - 0.42$ $p<0.005$
MSAS scores (Maternal Separation Anxiety)	NS	NS	$r = 0.24$ $p = 0.005$	$r = 0.19$ $p=0.03$
PAQ scores (emotional attachment to infant)	$r = - 0.46$ $p<0.005$	$r = - 0.59$ $p<0.005$	$r = - 0.36$ $p<0.005$	$r = - 0.48$ $p<0.005$
IBM Care scores (caring intimate relationship)	$r = - 0.40$ $p<0.001$	$r = - 0.42$ $p<0.001$	$r = - 0.31$ $p<0.001$	$r = - 0.40$ $p<0.001$
IBM Control scores (intimidating intimate relationship)	$r = 0.45$ $p<0.005$	$r = 0.44$ $p<0.005$	$r = 0.31$ $p<0.005$	$r = 0.33$ $p<0.005$
Stressful life event(s) since birth	NS	NS	$t = -3.7$ $p<0.005$	$t = -3.2$ $p=0.002$
Physical health (SF-36 item scores)	$r = -0.30$ $p=0.005$	$r = -0.21$ $p=0.01$	$r = -0.35$ $p<0.005$	$r = -0.39$ $p<0.005$
Infant behaviour	$\rho = 0.20$ $p=0.02$	$\rho = 0.16$ $p=0.05$	$\rho = 0.23$ $p=0.008$	$\rho = 0.24$ $p=0.005$
Breastfeeding	NS	NS	$t = 1.98$ $p=0.05$	NS
Satisfied with partner's contribution to housework / infant care	NS	NS	$t = 3.6$ $p=0.001$	$t = 3.2$ $p=0.02$

Several of the established predictors of maternal well-being had significant univariate association with better maternal emotional well-being in this sample at ten months,

including being privately insured, not experiencing any demanding life events, reporting better physical health, easier infant behaviour and a warm and affectionate intimate relationship. In addition, less separation anxiety, assessed using the first MSAS subscale “Maternal Separation Anxiety” as a continuous measure was correlated with less depressive symptoms, as was higher attachment to the infant measured on the total PAQ scale. Finally, reporting satisfaction with current employment and childcare arrangements (Maternal Satisfaction Index, MSI) was associated with better maternal well-being at both three and ten months across both assessments of maternal well-being.

#### **6.11.2.1 Determinants of maternal well-being at three months following birth**

Standard linear regression modelling was used to assess the contribution of maternal satisfaction with current employment and childcare arrangements (MSI scores) to maternal well-being when the variance explained by the other predictors of maternal mood (private health insurance, quality of partner relationship, antenatal mood, infant behaviour and physical health) was adjusted for. Regressions models were constructed for three and ten months data separately for each of the two outcome measures of well-being, the EPDS and the PoMS. Results of the regression model for maternal well-being at three months are presented in Table 6.54 for the EPDS.

**Table 6.54 Linear regression model assessing predictors of EPDS at 3 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Antenatal EPDS*</b>	0.24	0.12 to 0.36	0.28	<0.005
<b>Private health insurance [No]</b>				
<b>Yes</b>	-0.24	-0.86 to 1.35	-0.03	0.66
<b>IBM Care scale<sup>†</sup></b>	-0.02	-0.13 to 0.09	-0.03	0.74
<b>IBM Control scale<sup>†</sup></b>	0.18	0.06 to 0.29	0.26	0.004
<b>Self-rated physical health<sup>‡</sup></b>	-0.47	-1.03 to 0.08	-0.12	0.09
<b>Rating of baby behaviour</b>	0.04	-0.31 to 0.39	0.02	0.84
<b>Maternal Satisfaction Index<sup>§</sup></b>	-0.11	-0.18 to -0.03	-0.21	0.01
<b>Parent-to-infant attachment<sup>  </sup></b>	-0.18	-0.29 to -0.08	-0.29	0.001

\* Edinburgh Postnatal Depression Scale (Cox et al., 1987)

<sup>†</sup> Intimate Bonds Measure (Wilhelm & Parker, 1988)

<sup>‡</sup> SF-36 Global rating of Physical Health, higher score indicates better physical health (J Ware & Kosinski, 1994)

<sup>§</sup> Maternal Satisfaction Index (study specific assessment), higher scores indicate more satisfaction

<sup>||</sup> Parental Attachment Questionnaire (Condon & Corkindale, 1998)

This model accounted for approximately 50% of the variance in three-month EPDS scores [R-squared = 0.497, F(8) = 15.09, p<0.005]. The MSI index is the composite 7-item semantic differential scale assessing maternal satisfaction with current employment and childcare arrangements with higher scores indicating greater satisfaction. The MSI was completed by all participants at three months postpartum, whether currently employed, planning to be employed, or planning to remain in full-time infant care. The MSI had a unique, independent association with variation in EPDS scores, and was in fact the strongest factor associated with EPDS scores at three months postpartum ( $\beta = -0.29$ , p=0.001). Women who were more satisfied with their current infant care and employment circumstances overall reported less distress than women who were dissatisfied with their current arrangements. This suggests that satisfaction with employment and childcare arrangements is of unique salience to women's well-being, although given the cross-sectional data presented here, it is also possible that women who were less distressed appraised their circumstances more favourably than those with worse mood. Other factors significantly contributing to variation in EPDS scores were also relevant to well-being assessed by the POMS at

three months, and will be discussed below. Analyses of the regression model of maternal well-being assessed by the PoMS are presented in Table 6.55.

**Table 6.55 Linear regression model assessing predictors of PoMS at 3 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Antenatal PoMS*</b>	0.22	0.09 to 0.35	0.23	0.001
<b>Privately insured</b> [No] Yes	-5.56	-12.92 to 1.80	-0.09	0.14
<b>IBM Care scale<sup>†</sup></b>	-0.26	-0.98 to 0.48	-0.05	0.49
<b>IBM Control scale<sup>†</sup></b>	1.27	0.51 to 2.03	0.25	0.001
<b>Self-rated physical health<sup>‡</sup></b>	-0.45	-3.96 to 3.06	-0.02	0.80
<b>Rating of baby behaviour</b>	1.52	0.90 to 3.94	0.08	0.21
<b>Maternal Satisfaction Index<sup>§</sup></b>	-1.52	-2.30 to -0.75	-0.31	<0.005
<b>Parent-to-infant attachment<sup>  </sup></b>	-1.34	-1.91 to 0.48	-0.34	<0.005

\* Profile of Mood States (McNair et al., 1971)

† Intimate Bonds Measure (Wilhelm & Parker, 1988)

‡ SF-36 Global rating of Physical Health, higher score indicates better physical health (J Ware & Kosinski, 1994)

§ Maternal Satisfaction Index (study specific assessment), higher scores indicate more satisfaction

|| Parental Attachment Questionnaire (Condon & Corkindale, 1998)

Sixty two per cent of the variance in PoMS scores was accounted for by the above model [R-squared = 0.622, F(9) =19.55, p<0.005]. Similar to the regression using EPDS scores as the primary outcomes, higher Maternal Satisfaction Index scores were independently associated with maternal well-being assessed using the PoMS. As expected, worse self-reported antenatal mood was a strong predictor of poorer well-being in the early postnatal period assessed using both the EPDS and PoMS assessments. Being in an intimate relationship characterised by intimidation and control was also uniquely associated with worse maternal mood at this stage in the early postpartum. The significant relationship between worse maternal mood and well-being, and poorer quality attachment to the newborn infant continued from pregnancy to the early postpartum assessment reported here. Notably, lower maternal-infant attachment at three months had the strongest independent association ( $\beta = -$

0.34,  $p < 0.005$ ) with worse maternal well-being at three months (PoMS scores) when other known determinants of maternal mental health were adjusted for in the model.

#### **6.11.2.2 Determinants of maternal well-being ten months following birth**

Standard linear regression was also performed on the two maternal well-being outcome measures at ten months. All variables demonstrating a significant univariate association at a significance level of 0.05 or less were included in the model, as were potential confounders - earlier assessments of EPDS and PoMS, and social support assessed at ten months – that did not demonstrate significant univariate association with outcome measures. For both linear regression models, the corresponding 3 month EPDS or PoMS score was also included, as this was more strongly correlated with the 10 month outcomes than the antenatal EPDS and PoMS scores. Table 6.56 presents the results of the linear regression performed using the EPDS assessment of maternal well-being as the outcome measure.

**Table 6.56 Linear regression model assessing predictors of EPDS at 10 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-0.49	-1.73 to 0.76	-0.05	0.45
<b>3 month EPDS* total</b>	0.27	0.06 to 0.48	0.22	0.01
<b>IBM Care scale**</b>	-0.02	-0.17 to 0.14	-0.02	0.83
<b>IBM Control scale**</b>	0.02	0.13 to 0.17	0.02	0.81
<b>Stressful life events</b> [No] Yes	0.61	-0.75 to 1.97	0.07	0.37
<b>Total social support†</b>	-0.01	-0.16 to 0.14	-0.01	0.86
<b>Self-reported health since birth††</b>	-0.09	-0.80 to 0.63	-0.02	0.81
<b>Baby behaviour</b>	0.11	-0.31 to 0.54	0.04	0.60
<b>Breastfeeding 10 mos.</b> [No] Yes	-0.56	-1.83 to 0.72	-0.6	0.39
<b>Satisfied with partners contribution</b> [No] Yes	-1.29	-2.77 to 0.18	-0.13	0.09
<b>Maternal Satisfaction Index§</b>	-0.30	-0.44 to -0.16	-0.41	<0.005
<b>Maternal Separation Anxiety¶</b>	0.11	-0.04 to 0.26	0.10	0.16
<b>Parent-to-infant attachment#</b>	-0.15	-0.24 to -0.05	-0.24	0.004

\* Edinburgh Postnatal Depression Scale (Cox et al., 1987)

\*\* Intimate Bonds Measure (Wilhelm & Parker, 1988)

† Total Social Support (study specific assessment), higher scores indicate more support.

†† SF-36 Global rating of Physical Health, higher score indicates better health (J Ware & Kosinski, 1994)

§ Maternal Satisfaction Index (Study specific assessment) higher scores indicates more satisfaction

¶ Maternal Separation Anxiety subscale "Global maternal separation anxiety" (Hock et al., 1989)

# Parental Attachment Questionnaire (Condon & Corkindale, 1998)

Sixty-one per cent of the variance in the EPDS score at ten months was accounted for by the variables listed in Table 6.56 [R-squared = 0.612, F(14) = 10.76, p<0.005].

As at three months, maternal dissatisfaction with current employment and childcare arrangements, whether participants were employed or occupied in primary infant care, was the strongest factor independently associated with more depressive symptoms assessed on the EPDS at ten months ( $\beta = -0.41$ , p<0.005). Univariate analyses

revealed that particular job characteristics were associated with lower maternal satisfaction for employed women, including a shorter leave duration, being employed for more hours each week, and experiencing job discontinuity by resuming after the birth with a new employer (section 6.5.5). For women occupied in primary infant care, reporting that they were out of the paid workforce as they were unable to secure suitable infant care was associated with lower satisfaction with employment and childcare arrangements at ten months. The multivariate analyses presented above suggest that these adverse, structural, employment and childcare characteristics adversely affect maternal satisfaction, which in turn makes has a significant association with worse maternal mood at ten months.

The second maternal characteristic strongly and independently associated with maternal mood was the quality of mothers' attachment to their infant. Women reporting a less affectionate, less warm attachment to their ten month old infant also reported more depressive symptoms. This is consistent with Attachment theory, which has described a relationship between an anxious or ambivalent Adult Attachment Style, and vulnerability to clinical depression, due to a compromised capacity to form warm, trusting, close, supporting relationships (Bifulco et al., 2004; Bifulco et al., 2002). The evidence from this analysis suggests that this relationship is also relevant during early parenthood, and that a capacity to form a warm affectionate attachment to the infant is integral to women's postpartum mood and psychological adjustment, although it is also possible that lower mood compromises women's capacity to form a warm attachment to their infant.

Consistent with established evidence (Scottish Intercollegiate Guidelines Network, 2002), the third factor independently contributing to women's mood at ten months assessed using the EPDS was maternal mood assessed earlier in the postpartum at three months. It is notable that both maternal satisfaction with employment and childcare arrangements ( $\beta = -0.41, p < 0.005$ ), and maternal-infant attachment ( $\beta = 0.24, p < 0.004$ ) had a stronger relative association with variance in EPDS scores than three-month EPDS scores ( $\beta = 0.22, p < 0.01$ ), or any of the other established determinants included in the above regression model. Given that this model supports

that of established evidence, it also suggests that the observed independent association between lower maternal satisfaction and lower mood are in the direction hypothesised, rather than worse mood contributing to poorer appraisal of circumstances.

Results of the linear regression performed using the PoMS assessments of maternal well-being as the outcome measure at ten months are presented in Table 6.57.

**Table 6.57 Linear regression model assessing predictors of PoMS at 10 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-0.19	-8.42 to 8.03	-0.003	0.96
<b>3 month PoMS* total</b>	0.44	0.25 to 0.63	0.39	<0.005
<b>IBM Care scale**</b>	-0.14	-1.15 to 0.88	-0.02	0.79
<b>IBM Control scale**</b>	0.40	-0.57 to 1.37	0.07	0.41
<b>Stressful life events</b> [No] Yes	4.30	-13.26 to 4.66	0.07	0.34
<b>Total social support†</b>	-0.12	-1.09 to 0.86	-0.02	0.81
<b>Self-reported health since birth††</b>	-1.62	-6.26 to 3.03	-0.05	0.49
<b>Baby behaviour</b>	1.79	0.96 to 4.56	0.09	0.19
<b>Satisfied with partners contribution</b> [No] Yes	-4.70	-14.45 to 5.05	-0.07	0.34
<b>Maternal Satisfaction Index§</b>	-1.15	-2.06 to -0.25	-0.24	0.01
<b>Maternal Separation Anxiety¶</b>	0.54	-0.47 to 1.56	0.07	0.29
<b>Parent-to-infant attachment#</b>	-1.25	-1.91 to -0.59	-0.31	<0.005

\* Profile of Mood States (McNair et al., 1971)

\*\* Intimate Bonds Measure (Wilhelm & Parker, 1988)

† Total Social Support (study specific assessment), higher scores indicate more support.

†† SF-36 Global rating of Physical Health, higher score indicates better health (J Ware & Kosinski, 1994)

§ Maternal Satisfaction Index (Study specific assessment) higher scores indicates more satisfaction

¶ Maternal Separation Anxiety subscale “Global maternal separation anxiety” (Hock et al., 1989)

# Parental Attachment Questionnaire (Condon & Corkindale, 1998)



Sixty-four per cent of the variance of the PoMS ten months total score was accounted for by the model including the variables listed in Table 6.57 [R-squared = 0.646,  $F(13) = 12.64$ ,  $p < 0.005$ ].

The results from the two models predicting variance in maternal well-being at ten months are very similar, although the strength of their relationship with PoMS scores was different. In order of their relative strength of association, earlier postpartum mood at three months ( $\beta = 0.39$ ,  $p < 0.005$ ), maternal-infant attachment ( $\beta = -0.31$ ,  $p < 0.01$ ), and Maternal Satisfaction Index scores ( $\beta = -0.24$ ,  $p < 0.01$ ) were the three factors independently associated to the broad aspects of maternal psychological functioning assessed using the PoMS. Notably, lower maternal-infant attachment and less maternal satisfaction with employment and childcare remained significantly associated with worse maternal well-being when established risk factors for worse maternal mood were included in the regression model.

#### **6.11.2.3 Employed women's emotional well-being after birth**

Linear regressions were also performed separately for employed and non-employed women to assess the contribution of employment and psychosocial characteristics to well-being for each group at ten months postpartum. At three months, there were too few employed participants ( $n=25$ ) to perform regression analyses. Analyses of regression results for correlates of EPDS for employed women at ten months are presented in Table 6.58. Socio-economic status (private health insurance), adverse life events, social support and quality of intimate relationship are adjusted for in the model.

**Table 6.58 Linear regression model assessing predictors of EPDS for employed women (N=73) at 10 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-1.69	-3.71 to 0.34	-0.18	0.10
<b>“Financial” main reason for return</b> [No] Yes	0.81	-2.79 to 4.42	0.09	0.65
<b>Preference for employment</b> [No] Yes	1.26	-2.28 to 4.79	0.14	0.48
<b>Job suitable</b> [No] Yes	-2.46	-5.19 to 0.27	-0.24	0.08
<b>Experience of stressful life event</b> [No] Yes	1.04	-0.84 to 2.91	0.12	0.27
<b>3 month EPDS* total</b>	0.31	0.02 to 0.61	0.28	0.04
<b>Total social support</b>	-0.03	-0.26 to 0.19	-0.30	0.79
<b>IBM Care scale<sup>†</sup></b>	0.12	-0.13 to 0.37	0.15	0.33
<b>IBM Control scale<sup>†</sup></b>	-0.01	-0.24 to 0.23	-0.01	0.95
<b>Maternal Satisfaction Index<sup>‡</sup></b>	-0.13	-0.34 to 0.08	-0.17	0.20
<b>Maternal Separation Anxiety<sup>§</sup></b>	0.18	-0.07 to 0.43	0.16	0.15
<b>Parent-to-infant attachment<sup>  </sup></b>	-0.19	-0.32 to -0.06	-0.34	0.004

\*Edinburgh Postnatal Depression Scale (Cox et al., 1987)

<sup>†</sup>Intimate Bonds Measure (Wilhelm & Parker, 1988)

<sup>‡</sup>Maternal Satisfaction Index (Study specific assessment) higher scores indicates more satisfaction

<sup>§</sup> Maternal Separation Anxiety subscale “Global maternal separation anxiety” (Hock et al., 1989)

<sup>||</sup> Parental Attachment Questionnaire (Condon & Corkindale, 1998)

Fifty-eight per cent of the variance in the EPDS score at ten months for employed women was accounted for by the variables listed in Table 6.58 [R-squared = 0.584, F(12) = 5.51, p<0.005]. Earlier assessment of poorer postnatal mood (3 months EPDS) and relatively lower feelings of maternal-infant attachment (PAQ scores) were the only factors independently associated with worse well-being in employed women,

suggesting that the developing mother-infant relationship is of unique salience to employed women, when known determinants of postpartum mood are adjusted for in analyses. Reasons for employment resumption did not make an independent contribution to maternal well-being, indicating that for employed women, their reasons for participation in the workforce are possibly not as important to their psychological functioning as their attachment to their infant, even when employment is out of necessity rather than preference.

Results of regression analysis, adjusting for potential confounding variables, for factors making an independent contribution to PoMS scores for employed women at ten months are presented in Table 6.59.

**Table 6.59 Linear regression model assessing predictors of PoMS for employed women (N=73) at 10 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-2.79	-15.30 to 9.73	-0.45	0.66
<b>“Financial” main reason for return</b> [No] Yes	-8.56	-30.26 to 13.15	-0.14	0.43
<b>“Preference” to resume</b> [No] Yes	-10.01	-31.22 to 11.21	-0.16	0.35
<b>Job suitable</b> [No] Yes	-10.87	-27.79 to 6.03	-0.16	0.20
<b>Experience of stressful life event</b> [No] Yes	7.27	-4.22 to 18.76	0.12	0.21
<b>3 month PoMS* total</b>	0.37	0.10 to 0.65	0.35	0.008
<b>Total social support</b>	-0.25	-1.65 to 1.15	-0.04	0.72
<b>IBM Care scale<sup>†</sup></b>	0.31	-1.23 to 1.84	0.06	0.69
<b>IBM Control scale<sup>†</sup></b>	-0.51	-1.95 to 0.93	-0.93	0.48
<b>Maternal Satisfaction Index<sup>‡</sup></b>	-0.83	-2.12 to 0.48	-0.16	0.21
<b>Maternal Separation Anxiety<sup>§</sup></b>	0.37	-1.15 to 1.89	0.05	0.63
<b>Parent-to-infant attachment<sup>  </sup></b>	-1.57	-2.39 to -0.75	-0.42	0.001

\*Profile of Mood States (McNair et al., 1971)

<sup>†</sup>Intimate Bonds Measure (Wilhelm & Parker, 1988)

<sup>‡</sup>Maternal Satisfaction Index (Study specific measure) higher scores indicates more satisfaction

<sup>§</sup> Maternal Separation Anxiety subscale “Global maternal separation anxiety” (Hock et al., 1989)

<sup>||</sup> Parental Attachment Questionnaire (Condon & Corkindale, 1998)

Sixty-five percent of the variance in PoMS scores was accounted for by the model described in Table 6.59 [R-squared = 0.648,  $F(12) = 7.2$ ,  $p < 0.005$ ]. Similar to the EPDS, previous well-being assessed earlier at 3 months, and mother-to-infant attachment were the only variables independently associated with PoMS scores, when risk factors for mood disturbance (quality of intimate relationship, stressful life

events, social support and socio-economic status) and employment variables (reasons for return, timing of return, suitability of job, maternal satisfaction index) were included in the model. Lower maternal-infant attachment remains independently associated with poorer well-being for employed women, as reported for the whole sample at ten months.

#### **6.11.2.4 Emotional well-being of mothers occupied in full-time infant care**

At three months, most of the sample (113/138, 82%) remained in full-time infant care. As expected, correlates of well-being for non-employed mothers were similar to those of the total sample, as presented in Tables 6.54 and 6.55, and these results are not repeated here.

At ten months postpartum, well-being for non-employed women was modelled using the same set of independent variables associated with well-being for the total sample. In order to assess the relative contribution of maternal preferences and satisfaction with employment plans (in this case, remaining in full-time infant care), the MSI score, maternal preferences for full-time infant care (versus part-time employment) were added to the model. Potential confounders were adjusted for including private health insurance, partner support, quality of intimate relationship and experiencing adverse life events. Regression on EPDS scores are presented in Table 6.60.

**Table 6.60 Linear regression model assessing predictors of EPDS for non-employed women (N=56) at 10 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-0.26	-2.09 to 1.57	-0.25	0.77
<b>Preference for part-time employment</b> [No] Yes	0.84	-1.30 to 2.97	0.07	0.43
<b>Experience of stressful life event</b> [No] Yes	0.59	-1.35 to 2.52	0.06	0.54
<b>3 month EPDS* total</b>	0.32	0.05 to 0.58	0.25	0.02
<b>Maternal Satisfaction Index</b> <sup>†</sup>	-0.48	-0.64 to -0.32	-0.68	<0.005
<b>Maternal Separation Anxiety</b> <sup>‡</sup>	0.09	-0.14 to 0.32	0.08	0.44
<b>Parent-to-infant attachment</b> <sup>§</sup>	-0.002	-0.16 to 0.16	-0.002	0.98
<b>IBM Care scale</b> <sup>††</sup>	-0.15	-0.36 to 0.07	-0.15	0.17
<b>IBM Control scale</b> <sup>  </sup>	-0.02	-0.23 to 0.18	-0.02	0.83
<b>Total Social Support</b>	0.07	-0.14 to 0.28	0.06	0.51

\*Edinburgh Postnatal Depression Scale (Cox et al., 1987)

<sup>†</sup> Maternal Satisfaction Index (Study specific assessment) higher scores indicates more satisfaction

<sup>‡</sup> Maternal Separation Anxiety subscale "Global maternal separation anxiety" (Hock et al., 1989)

<sup>§</sup> Parental Attachment Questionnaire (Condon & Corkindale, 1998)

<sup>||</sup> Intimate Bonds Measure (Wilhelm & Parker, 1988)

This model was highly predictive, accounting for 79% of the variance in EPDS scores [R-squared = 0.788, F(11) = 11.45, p<0.005]. High maternal satisfaction with current arrangements, in this case remaining out of the paid workforce, was the strongest factor associated with less distress and anxiety ( $\beta = -0.68$ , p<0.01), even when known determinants of postpartum well-being were included in analyses. This suggests that women experiencing high maternal satisfaction with the opportunity to remain out of the paid workforce, and to have uninterrupted time with their new infant, report better psychological functioning than women who are dissatisfied with their arrangements, although it is also possible that women with lower mood appraise their arrangements

more negatively than those with better mood. The earlier postnatal EPDS assessment was the only other factor significantly associated with lower EPDS 10-month scores.

Notably, poor maternal-infant attachment was not associated with poor maternal mood in non-employed women. In univariate analyses, full-time infant care was consistently associated with a stronger attachment, and higher maternal separation anxiety, itself an indicator of a warm, affectionate mother-infant bond. It may be that women who remain in full-time infant care are those with the strongest emotional attachment to their infant, as they have had the opportunity to develop and strengthen this relationship prior to the interruption conveyed by employment participation. It may be then that the strength of their attachment to their infant does not distinguish between variations in non-employed participants' depressive symptoms. Rather, mood for these women was more strongly related to choice and satisfaction about continuing their occupation in primary infant care.

Table 6.61 presents the results of linear regression analyses for non-employed women using the PoMs total score as the dependent variable.

**Table 6.61 Linear regression model assessing predictors of PoMS for non-employed women (N=56) at 10 months**

Variable	Unstandardised Co-efficient (B)	95% CI for B	Standardised co-efficient ( $\beta$ )	P-Value
<b>Privately insured</b> [No] Yes	-0.88	-13.01 to 11.27	-0.01	0.88
<b>Preference for part-time employment</b> [No] Yes	-5.24	-19.14 to 8.65	-0.06	0.45
<b>Experience of stressful life event</b> [No] Yes	-9.67	-23.14 to 3.79	-0.14	0.15
<b>3 month PoMS* total</b>	0.60	0.33 to 0.86	0.48	<0.005
<b>Maternal Satisfaction Index<sup>†</sup></b>	-2.97	-4.04 to -1.91	-0.61	<0.005
<b>Maternal Separation Anxiety<sup>‡</sup></b>	0.49	-1.03 to 2.01	0.06	0.51
<b>Parent-to-infant attachment<sup>§</sup></b>	-0.17	-1.24 to 0.90	-0.03	0.75
<b>IBM Care scale<sup>  </sup></b>	-0.84	-2.23 to 0.55	-0.12	0.23
<b>IBM Control scale<sup>  </sup></b>	0.64	-0.74 to 2.02	0.09	0.36
<b>Total social support</b>	0.23	-1.14 to 1.60	0.03	0.73

\*Profile of Mood States (McNair et al., 1971)

<sup>†</sup> Maternal Satisfaction Index (Study specific measure), higher scores indicates more satisfaction

<sup>‡</sup> Maternal Separation Anxiety subscale "Global maternal separation anxiety" (Hock et al., 1989)

<sup>§</sup> Parental Attachment Questionnaire (Condon & Corkindale, 1998)

<sup>||</sup> Intimate Bonds Measure (Wilhelm & Parker, 1988)

This model accounted for a large amount (82%) of the variance in PoMS scores [R-squared = 0.815, F(11) = 13.58, p<0.005]. For non-employed women (N=56), higher maternal satisfaction with current arrangements to remain in full-time infant care was the strongest factor independently associated with lower PoMS scores ( $\beta = -0.61$ , p<0.005), when stressful life events, social support, quality of intimate relationship and socio-economic status were included in the model. As expected, the previous PoMS assessment at three months was also independently predictive of ten months PoMS scores ( $\beta = 0.48$ , p<0.005). Together, these factors were independently associated with PoMs and EPDS, suggesting that across all dimensions of well-being



– fatigue, confusion, worry, sadness and irritability - having discretion and a high degree of control about being able to fulfil preference for remaining in primary infant are salient factors potentially contributing to better mental health outcomes.

For all the above linear regression models, no two independent variables included in any one model had an association of  $r = 0.70$  or greater with the dependent variable in univariate analyses, thus there was no confounding on the basis of multi-collinearity in any of the models. Visual inspection of the residual scatterplots and the normal probability plot of the regression residuals were conducted to assess the assumption of normality of the models, and these suggested no major deviations from normality. There were no significant outliers in any of the independent variables. Together, these factors indicate that there was no significant violation of the assumptions of linear regression, and therefore provide support for the results of regression analyses summarised in Table 6.62.

**Table 6.62 Summary of determinants of better maternal well-being\***

<b>Time of Assessment</b>	<b>EPDS</b>	<b>PoMS</b>
<b>ANTENATAL</b>	Private health insurance No workplace adversity	High maternal-foetal attachment Private health insurance
<b>3 MONTHS</b> <b>Total sample (N=138)</b>	More maternal satisfaction with employment arrangements Lower antenatal EPDS scores Less controlling intimate relationship High maternal-infant attachment	High maternal-infant attachment More maternal satisfaction with employment arrangements Less controlling intimate relationship Lower antenatal PoMS scores
<b>Non-employed (N=113)**</b>	Lower antenatal EPDS scores Less controlling intimate relationship More maternal satisfaction with employment arrangements High maternal-infant attachment	High maternal-infant attachment Less controlling intimate relationship More maternal satisfaction with employment arrangements Lower antenatal PoMS scores
<b>10 MONTHS</b> <b>Total Sample (N=129)</b>	More maternal satisfaction with employment arrangements High maternal-infant attachment Lower 3 month EPDS scores	Lower 3 month PoMS scores High maternal-infant attachment More maternal satisfaction with employment arrangements
<b>Employed women (N=73)</b>	High maternal-infant attachment Lower 3 month EPDS scores	High maternal-infant attachment Lower 3 month PoMS scores
<b>Non-employed women (N=56)</b>	More maternal satisfaction with employment arrangements Lower 3 month EPDS scores Fulfilling choice to remain in full-time infant care	More maternal satisfaction with employment arrangements Lower 3 month PoMS scores Fulfilling choice to remain in full-time infant care

\*independent variables appear in order of relative size of contribution, strongest predictors listed first

\*\* Too few employed participants at three months to perform regression analysis

## **6.12 CONCLUSIONS**

This chapter has examined the findings of the longitudinal prospective cohort study of over 170 women, 75% of whom provided complete study data.

The first of the two major aims of the study was to identify the determinants of primiparous mothers' employment resumption in the first ten months following birth. None of the demographic factors currently assumed to hasten maternal employment resumption, such as older maternal age, higher educational attainment and occupational status were significantly associated with postnatal employment in this sample of Australian mothers. Rather, these findings indicate that several previously under-investigated aspects of maternal circumstances and psychological functioning were of relevance to postnatal employment participation, above previously identified socio-demographic factors. Maternal preference was strongly associated with employment participation, with mothers reporting a preference for part-time employment over full-time infant care significantly more likely to be employed by ten postpartum months than mothers not reporting this preference. In addition, mothers who were not breastfeeding their infants at ten months were substantially more likely to be employed than women not breastfeeding. The third factor making a unique contribution to employment participation was lower, rather than higher, maternal separation anxiety assessed on the MSAS, indicating less concern, worry and sadness about regular separation from their infant for the purposes of employment participation. The mother-infant relationship, therefore, particularly women's anxiety about separation from their infant, is a relevant aspect of women's employment participation, and in this sample was more strongly, independently associated with employment status at ten months than age, socio-economic position and education.

The second major aim of this study was to assess the relative contribution of employment-related variables to maternal perinatal emotional well-being in contribution with that of known determinants of maternal mood. Antenatally, women in this sample who had experienced some form of workplace adversity including no access to maternity entitlements, and pregnancy-related workplace discrimination, had significantly poorer mood, including more depressive symptoms, irritability, fatigue

and anxiety, than women not experiencing workplace adversity when socio-economic position, education and occupational status were adjusted for in analyses. This suggests therefore that even prior to the birth of a first baby, employment characteristics are relevant to women's well-being and psychological functioning, but have not been considered in literature examining the social determinants of maternal mood in pregnancy.

Postnatally, for the total sample, participants' satisfaction with current employment and childcare arrangements was the strongest factor consistently associated with better emotional well-being, over and above that of known determinants of mood such as partner support, socio-economic status and concurrent stressful life events. Women who reported an overall sense of autonomy and confidence about their current employment and childcare arrangements, regardless of their actual employment status reported less distress and anxiety than women who were dissatisfied with their current employment arrangements. Lower maternal satisfaction was associated with resuming out of financial imperative, working more employment hours, having a shorter leave of absence following the birth and a job that combined poorly with motherhood for employed women. For women remaining in full-time infant care throughout the study, not being able to access suitable childcare was similarly associated with lower maternal satisfaction. Together these results suggest that several observable employment and structural circumstances adversely affect maternal satisfaction, and this in turn is associated with poorer maternal mood in the postpartum.

Mothers' emotional attachment to their infant with their newborn, and then older infant, remained strongly associated with maternal well-being throughout the postnatal period. Univariate analyses described women with comparatively lower attachment to their infant as having poorer quality relationships with intimate partners, and more depressive symptoms in pregnancy and following birth. When other known risk factors for worse perinatal mental health were included in multivariate analyses, lower quality mother-infant relationship remained significant. This aspect of women's psychological functioning and adjustment to parenthood has not been widely included in investigations of perinatal mental health, yet these results

suggest that the mother-infant relationship is highly relevant, both to employment decisions and to maternal psychological well-being. The implications and relevance of these major study findings form the basis discussion for the final chapter.



# **CHAPTER 7 DISCUSSION AND CONCLUSIONS**

This study makes an original contribution to the current evidence about the social determinants of women's perinatal mental health and well-being. Employment conditions, entitlements and participation have been previously under-investigated as potential determinants of perinatal mental health, and the evidence from this investigation demonstrates their relevance.

## **7.1 STRENGTHS AND LIMITATIONS OF THE STUDY**

### **7.1.2 Strengths of the study**

There were several strengths of the present study. The systematically recruited study sample was of comparable age, marital status, insurance status and country of birth to all women who gave birth in Victoria, Australia in the same year as recruitment for this study occurred (Davey, Taylor, Oats, & Riley, 2008). Participants were from a range of socio-economic backgrounds, improving upon existing research investigating mothers' paid employment which were predominantly conducted within convenience samples (Feldman et al., 2004; Gjerdingen et al., 1991; MG Killien, Habermann, & Jarrett, 2001; Leathers et al., 1997), or amongst homogenous samples of socio-economically advantaged, partnered women (Hyde et al., 2001; Hyde et al., 1995; Klein et al., 1998), that had not accounted for the influence of socio-economic position on employment entitlements, choices and constraints.

There are little parity-specific labour force data available, so it is difficult to ascertain how the sample compares to employed Australian women expecting a first birth. However, as participants were recruited from two maternity hospitals, one of which is Victoria's largest public, tertiary maternity hospital providing care to a diverse group of women, and the other the largest provider of public obstetric care in the state, it is likely that the sample was representative of employed, nulliparous Australian women.

In addition the high response (83%), and retention rates (78%) were also methodological strengths of the study. Private health insurance is a strong indicator of socio-economic status and in this study was significantly correlated with high educational attainment and high occupational status. For all data collection intervals, there were no differences in the proportion of completed interviews and questionnaires returned between participants with and without private health insurance except for the self-report questionnaire at three months postpartum, when more privately insured women (99%) returned the questionnaire than women receiving antenatal care in the public system (72%). Women who completed the interview and all three questionnaires were of similar marital status, country of birth, education level and health insurance status to participants who did not complete all study components, with the only distinction being the older mean age (32 versus 29 years), and the higher occupational status of women who completed all study components. While these results cannot therefore be generalised to women of lower occupational status, it is likely that the higher occupational status of women completing all study components is protective against some of the worse employment outcomes such as a lack of maternity entitlements, so again, these findings are likely to underestimate the prevalence and effect of adverse employment conditions.

The longitudinal design of the study allowed for both cross-sectional and longitudinal analyses. The timing of the three questionnaires reflected the likely timing of decision-making about paid employment. Women were interviewed during pregnancy at greater than 20 weeks gestation, when they would have begun to make arrangements to have time out of the paid workforce following childbirth. Follow-up at three months postpartum coincided with the end of paid maternity leave for those women who were able to access it. The final follow-up at ten months postpartum approached the end of the statutory 52 weeks of unpaid parental leave currently available in Australia, as most women commenced leave of absence from the paid workforce three to four weeks prior to the birth. The study design allowed for comparison between experiences early and later in the postpartum year for the primary study outcomes including postnatal emotional adjustment, decisions about



employment participation and maternal feelings about separation from their infant for the purposes of employment.

The study was designed to incorporate a range of factors previously unexplored in relation to maternal well-being and maternal employment. When available, standardised psychometric assessments were used. Data were collected about a broad range of structural, social and personal factors including workplace characteristics, childcare arrangements, breastfeeding duration, infant behaviour, unpaid domestic labour and the quality of relationship with partner. In addition, the mothers' developing relationship with her unborn baby, and then infant, was assessed, as was participants' emotional experience of the regular separations from the infant required upon resuming employment. These were included in analyses addressing the first aim of the study, investigating the determinants of postnatal paid employment.

Maternal well-being was assessed by two standardised published psychometric measures of maternal mood, and these were the primary outcomes of the second study aim. In order to ascertain the relative contribution of employment-related variables to maternal well-being at ten months postpartum, known determinants of postnatal mood were included in multivariate analyses such as assessments of the intimate partner relationship, available social support, concurrent stressful life events, early postpartum mood, infant behaviour, maternal physical health and socio-economic position (Pope, 2000; Scottish Intercollegiate Guidelines Network, 2002). Hypothesised salient variables were then added to the multivariate model to investigate the relative contributions of women's satisfaction with their current employment and childcare arrangements, and the relevance of maternal-infant emotional attachment to maternal mood in the postpartum period.

The definition of mental health and well-being used in this study aimed to identify the continuum of women's perinatal affective experiences, including aspects of well-being previously under-investigated such as anxiety, fatigue, clarity of thought and irritability as well as depressive symptoms. The primary outcome measures assessing maternal mood, the Edinburgh Depression Scale (EPDS) (Cox et al., 1987) and the Profile of Mood States (PoMS) (McNair et al., 1971) were used as continuous

measures in this study, to assess factors influencing the broad spectrum of maternal well-being, rather than as clinical screening tools designed to indicate the presence or absence of probable depression.

### **7.1.3 Limitations of the study**

Several limitations of the study need to be acknowledged. Mood data were not available for women who did not complete all study materials in pregnancy, so it is not possible to ascertain whether those participants with the most psychological symptoms were also those who did not provide complete information. If this were the case, the evidence provided may be biased towards that provided by women reporting better mental health and well-being, and the observed relationship between employment characteristics, entitlements and satisfaction might be an underestimate, rather than an overestimate.

By nature of the research aims, the sample was all employed, and therefore more likely to be highly educated than non-employed women. Participants were also significantly more likely to be employed in a professional, associate professional or managerial occupation than all employed Australian women aged 15-65 (Australian Bureau of Statistics, 2004). Women less involved in the paid labour force, such as those employed for less than 20 hours per week, were not eligible for inclusion in this study, and results of this study cannot be generalised to women in the most marginalised occupations. However, workplace conditions and entitlements for these women are likely to be worse than those observed in this sample, so these results are more likely to be an under-estimate, rather than an overestimate of the effect of employment factors on maternal well-being.

Although a broad range of factors thought to contribute to maternal mood were assessed and included in analysis here, maternal mood is multifactorially determined, and several salient, potential contributors to women's psychological functioning were not assessed in this study. Participants were not asked about their personal history of mental health problems, a risk factor for ante- and postnatal depression (Pope, 2000; Scottish Intercollegiate Guidelines Network, 2002). The possibility that some of the observed mood differences reported here are attributable to women's prior history of

mental health problems cannot be excluded. Similarly, several aspects of personality, such as low self-esteem, obsessionality and having a negative attributional style are thought to increase vulnerability to depression in adulthood (Boyce, Hickie & Parker, 1991; Beck, 2001), and the role of these factors in contributing to study outcomes is not known.

This study reports access to maternity-related employee entitlements, and the relationship of these entitlements to maternal mood. Eligibility for maternity leave, paid and unpaid, is premised on the criterion of 12 months of continuous employment with the same employer prior to taking the maternity leave. This study did not assess whether women had been continuously employed with their current employer for 12 months, or their eligibility for this leave. However, as the sample were all employed, predominantly on a full-time basis, and were yet to experience career interruption due to unpaid labour responsibilities, it can be assumed that most of the sample would have been eligible for the universal unpaid maternity leave provision currently in place in Australia, and for paid maternity leave in workplaces that offered this entitlement.

It is possible that in some instances, the study was not sufficiently powered to detect statistically significant differences in hypothesised relationships, particularly within-sub-group comparisons of employed and non-employed women. These non-significant findings need to be interpreted with caution, as it may be that with a larger sample size, significant differences may have been detected.

## **7.2 MAJOR ORIGINAL FINDINGS OF THE STUDY**

The main findings of this study address the two study aims and main hypotheses about the determinants of women's postnatal employment participation, and the relative contribution of employment factors to mothers' mental health in pregnancy and the postpartum.

### **7.2.1 Workplace adversity and antenatal psychological well-being**

Workplace adversity was defined as experiencing pregnancy-related workplace discrimination, having difficulty negotiating leave with an employer, or being unable to access paid and / or unpaid maternity leave. Prevalence of workplace adversity was high (69%), and 40% of participants reported more than one form of workplace adversity in pregnancy. Lower socio-economic position, operationalised in this study as not having private health insurance and receiving antenatal care in the public system was strongly associated with the increased likelihood of reporting adverse workplace conditions and entitlements. Nearly 80% of women without private health insurance reported workplace adversity, compared to 57% of women with private health insurance, although even in those with private health insurance, the experience of adversity was surprisingly common.

The striking finding in this study was that nearly one in five participants experienced sexual discrimination in pregnancy, such as harassment, abusive comments or differential treatment that met the Human Rights and Equal Opportunity Commission's definition of pregnancy-related discrimination. This confirms findings of a recent national survey which found that 22% of employed women reported difficulties at their workplace during pregnancy (Australian Bureau of Statistics, 2006d). Sexual discrimination is humiliating, degrading and distressing, and is intended to render the recipient powerless to challenge the behaviour and reinstate the respect, consideration and employment opportunities that may have been revoked. During pregnancy, employed women need to negotiate a period of leave, and in many cases, an arrangement for changed employment arrangements after the birth. The inequitable distribution of maternity leave entitlements across Australian workplaces means that for many women, employer discretion is critical to the success of leave negotiations. Inherent in the relationship between employer and employee are disparities in power that render it very difficult for individual employees to advocate for their own entitlements with their employer. When these negotiations must occur in an atmosphere of discrimination, the power differential is heightened, and it is even

less likely for a pregnant employee to negotiate fair and favourable arrangements for their leave and possible employment resumption following the birth.

Currently in Australia, there is no universal provision of paid maternity leave, and previous studies have found that paid maternity leave, offered under very few industrial awards and otherwise reliant on employer discretion, is inequitably provided to women employed in professional and managerial, full-time occupations (Australian Bureau of Statistics, 2000, 2006d; Baird et al., 2002; Gray & Tudball, 2002b). This was confirmed in this study, and women employed in more poorly remunerated, low status occupations were significantly less likely to have access to paid maternity leave those employed in high-status, well-remunerated roles. The provision of a paid maternity entitlement provides employees with an independent income, and protects women's time out of the paid workforce to establish a relationship with her new baby and develop competence in the tasks of parenting an infant. It is arguable that this provision is of even greater necessity to women of less socio-economic advantage, who are also more likely to experience concurrent adversity in the form of lower overall family income, less access to primary health care and less stable housing or accommodation. The evidence provided in this study indicates that women most in need of financial support and employment options around the birth of a baby are those least likely to have access to these entitlements.

Another striking finding was that unpaid maternity leave, currently a legislative provision for all Australian women employed continuously for at least twelve months with the same employer (Baird et al., 2002), was only accessed by 60% of participants. This is a lower rate than expected given the current statutory provision, but similar to that reported in previous studies (Baird & Litwin, 2005; Whitehouse et al., 2006c). Participants were predominantly employed full-time, and expecting a first baby so were yet to have their labour force participation interrupted by childbearing. It was expected that most of the sample would have been eligible for, and thus have had access to, 52 weeks of unpaid maternity leave. Although eligibility was not assessed in this study, it is assumed that the low rate of access is not wholly due to ineligibility for the provision. Rather, it appears that many women were not aware of,

or not informed about their right to access this maternity entitlement, or that it was not appropriately offered by their employer. Whether a provision that 40% of women are unable to access can be described as “universal” is questionable, and is suggestive of poor knowledge about women’s rights to this entitlement, and poor monitoring of the appropriate provision of this leave by employers and workplaces in Australia.

Women who experienced workplace adversity had measurably worse antenatal psychological functioning, in particular more distress and depressive symptoms, and more anger, anxiety and fatigue than women not reporting workplace adversity when socio-economic status, maternal-foetal attachment, and educational attainment were adjusted for in analyses. Optimally, participation in employment conveys an independent income, opportunities for social and peer support, the development of skills and an occupational identity. However, it is plausible that in pregnancy, faced with a shift to the unpaid workforce, coupled with loss of income and job insecurity, and at worst, discrimination and harassment, these adverse job conditions result in heightened worry, distress, anger and more overall mood disturbance. Given cross-sectional nature of these pregnancy data, it is not possible to attribute a direction to this relationship, and an alternative interpretation might be that women with lower mood and worse affect attract the worst entitlements and job conditions.

Employment adversity, including discrimination, has been under-investigated as a relevant social determinant of postnatal depression, and perinatal mental health more generally. Given that 80% of Australian women are employed prior to first childbirth (Baxter, 2005a), the evidence reported here supports the provision of a universal paid maternity entitlement, not only to improve maternal and infant well-being following birth, but also during pregnancy when women are making their postnatal plans and arrangements.

### **7.2.2 Determinants of postnatal employment resumption**

A main aim of this study was to ascertain which, of a range of previously under-investigated personal, infant and structural factors, contributed to women’s paid employment participation. Over half of the sample (56%) resumed some form of employment by ten months postpartum. This is a higher rate of resumption than

reported in other Australian studies which found that approximately 40% of Australian mothers resume employment in the first year after birth (Australian Bureau of Statistics, 2006d; Department of Family and Community Services, 2004). However, the sample in this study is of women having a first baby. Accordingly, most were employed during pregnancy, predominantly on a full-time basis, and in contrast to women expecting a subsequent baby, were yet to negotiate the competing demands of infant care and paid employment. It is established that Australian women's workforce participation is generally related to the number of children in the household (Campbell & Charlesworth, 2004; Gray et al., 2002c), and therefore it is expected that a sample of primiparous women would have a higher rate of resumption than studies of women of mixed parity.

Few maternal demographic characteristics such as age, educational attainment, marital status, or country of birth were associated with employment participation in this group of women, although the relative high educational attainment and high occupational status of the sample might have precluded these differences being detected as they have been in representative population samples (Baxter, 2005a). There was no direct relationship between socio-economic disadvantage and employment resumption. However, for women who resumed employment at or before either the three month (n=25) or the ten month (n=73) postnatal questionnaires, 84% at three months and 85% at ten months agreed that financial necessity was an important factor in this decision to resume employment. For 43% of employed women at ten months, this was their main reason for resuming employment following birth. This supports results of other recent Australian surveys that more than half of all women reported resuming employment out of financial necessity (Whitehouse et al., 2006c), and this was observed across the socio-economic spectrum (Australian Bureau of Statistics, 2006d; Whitehouse et al., 2006c). Financial necessity is of relevance to most women, and is not necessarily a function of socio-economic position or income, suggesting that the term "necessity" might be a relative term and have multiple meanings. However, the frequency with which women cited financial necessity as integral to their postpartum employment is particularly notable when currently in Australia, there is no universal paid maternity leave scheme. Paid maternity leave would provide some relief from the

immediate financial imperative that constrains women's considerations of the optimal time to resume participation in the paid workforce following birth.

While a range of factors had significant univariate association with employment participation at ten months postpartum, logistic regression, conducted for the whole sample at 10 months on the binary outcome of women being employed or not employed, revealed that three factors were independently associated employment participation when other factors known to influence women's employment were adjusted for. In order of their relative contribution to women's employment at ten months, these were maternal preference for part-time employment rather than full-time infant care, not or no longer breastfeeding and lower maternal separation anxiety.

#### **7.2.2.1 Maternal preferences**

Women who agreed that they would prefer some part-time (but not full-time) employment over full-time infant care, regardless of actual employment participation, had a fivefold increased likelihood of being employed at ten months. This suggests that employment is, for some women, a preferred choice, an active part of their adult identity and important to them to combine with their new occupation as a mother. It is important to note that of the 56% (73/129) women employed at the end of the study, most (40%), were employed part-time, for an average of less than 20 hours per week. Part-time employment is a means through which many women negotiate the demands of their paid and unpaid workload, and an integral part of assimilating their existing occupational identity in the paid workforce with their emerging competence in parenting and new identity as a mother. Currently however, the provision of part-time employment after a period of maternity leave is not mandated within statutory employment provisions and is therefore not available to many who might seek it (Human Rights and Equal Opportunity Commission, 2002a).

The role of maternal preferences in employment participation across the life course has been subject to recent scholarly and theoretical debate. Hakim (2002; 2006) argues that in affluent societies where women enjoy reproductive freedom, educational opportunity, and access to part-time employment, women's preferences are the single influence governing employment participation throughout adult life.



Others have criticised Hakim's theory as too simplistic, arguing that women's preferences are not static, but are responsive to life stages, including during childbearing (Himmelweit & Sigala, 2004). Several authors have suggested that the relationship between preferences and employment participation is substantially constrained by circumstances and structural impediments including access to flexible employment and suitable childcare, financial necessity, and the universal inequitable division of the domestic work (Crompton & Harris, 1998b; McRae, 2003).

The evidence provided in this study supports the conceptualisation that the relationship between maternal preferences and maternal employment participation following childbirth is complex. While preference was strongly and independently associated with employment participation in this sample, maternal feelings and thoughts about separation from the infant, and breastfeeding status were also of high salience. For employed women ( $n=73$ ), the majority commented that financial imperatives were important (85%), and for non-employed women (56), over half (55%) were unable to secure appropriate alternative childcare, and 25% reported that their job was no longer available to them. It seems then that while maternal preferences do influence maternal employment decisions, structural and employment factors interact with preferences to influence maternal employment at this unique life stage.

#### **7.2.2.2 Breastfeeding**

Participants had higher breastfeeding initiation rates and longer breastfeeding duration than reported in other studies (Amir & Donath, 2008; Donath & Amir, 2005), and this is likely to be attributable to their higher education and occupational status than all Australian mothers. At ten months postpartum, fewer employed women (33%) were breastfeeding their infants than non-employed women (59%), and there was a strong positive association between longer breastfeeding duration, and a longer leave of absence from the paid workforce in univariate analyses. This finding was confirmed in multivariate analyses as employed women were significantly less likely to be breastfeeding their infants (OR= 0.24) at ten months than women not participating in employment.

This finding is consistent with that reported in a recent study based on analyses of a population cohort of Australian infants, which reported that any employment participation in the first 6 months postpartum, including full-time, part-time or casual for few hours per week, is associated with a breastfeeding duration of less than 6 months (Cooklin et al., 2008). While in American studies, part-time or casual employment has no effect on breastfeeding duration compared to full-time employment (Fein & Roe, 1998; Ryan et al., 2006; Visness & Kennedy, 1997), in Australia, shorter working hours are no more protective of breastfeeding than full-time employment.

It is unclear why this effect is found in Australia uniquely, but it suggests that currently, Australian workplaces are poorly equipped to support women to continue breastfeeding. Qualitative comments in this study suggest that some women decreased breastfeeding frequency, or ceased breastfeeding in preparation for returning to their job, presuming that the two activities were mutually exclusive. This is a plausible assumption given that so few Australian women are currently combining employment and breastfeeding, and few role models exist for combining the two activities successfully. For some women, this may be an active choice; resuming employment may seem a natural end to the early period of intensive infant care. However, other comments provided suggested that women resumed employment intending to sustain breastfeeding, and yet found it too difficult to continue. This suggests that for women who wish to continue breastfeeding, workplace provisions are influential. Currently, breastfeeding support in the workplace, such as the provision of lactation breaks is a matter for individual employees to negotiate, at the discretion of individual employers. The evidence from this study suggests that Australian women find it very difficult to sustain breastfeeding once they have resumed employment.

### **7.2.2.3 Maternal separation anxiety**

At both three and ten months postpartum, lower scores on the Maternal Separation Anxiety Scale (MSAS) (Hock et al., 1989) were reported by women who had resumed employment. Lower separation anxiety scores at three months predicted employment participation at ten months. In multivariate analyses, there was a significantly higher

likelihood of being employed at ten months in women reporting lower, rather than higher separation anxiety scores on this scale, when maternal age, education, occupational status and access to maternity entitlements were adjusted for in analyses.

One plausible explanation is that for women who have resumed employment, repeated exposure to regular, successful separations from their infant may have desensitised them and reduced their anxiety to the lower levels observed at ten months. Notably in this study however, women reporting lower levels of separation anxiety at three months were also more likely to be employed at ten months, suggesting a causal relationship. Furthermore, there was no reduction in MSAS scores over time in women who were employed at both of the postpartum study intervals, indicating that exposure to repeat separations is not the explanation for the lower separation anxiety reported by employed women. Rather, these results suggest that earlier maternal separation anxiety influenced maternal decisions about employment participation.

Close examination of the aspects of maternal thoughts and feelings assessed by the MSAS shows that women with higher scores have stronger beliefs about the necessity of exclusive maternal care, more sadness and guilt at being away from the baby, less emotional attachment to their career or to job participation and more concerns about how well their child will be cared for and comforted by a babysitter. It is plausible that these women, given the choice, will prolong their time out of the paid workforce to care for and mother their infant in a way that is consistent with their belief in the importance of exclusive maternal care-giving, and with their own reflections that their employment, at least at 10 months postpartum, is not of sufficient importance to interrupt their time with their infant.

Conversely, women who have lower scores on the MSAS have generally indicated that their employment is of high salience and conveys to them substantial personal satisfaction, that their infant will benefit from time with other caregivers or children, and that in general, their infant will be well cared for and develop new social skills in their absence. It is expected then that women who are less anxious about their own and their infant's well-being when they are apart see their participation in the paid workforce as complementary to, rather than in conflict with, mothering their infant.

Consistent with earlier evidence about this psychological construct (Hock et al., 1988; Hock et al., 1989), maternal separation anxiety in this study was partially, but not wholly explained by the nature of women's attachment to their infant. While stronger maternal attachment to the infant at ten months was associated with more maternal separation anxiety, socio-economically advantaged women overall reported lower separation anxiety. Hock et al. (1988) argue that maternal separation anxiety is influenced by social and cultural norms that govern perceptions about the extent to which non-maternal care is appropriate for infants. Socio-economic status may influence social, peer and family norms and expectations about mothering that inform women's decisions about the necessity of exclusive maternal care and the appropriateness of employment participation. Highly educated, socio-economically advantaged women may also have a greater sense of entitlement, and feel readily able to assert their needs for intellectual activity, a relief from their unpaid workload and opportunity for social interaction that is optimally provided by employment participation. They are also more likely to have the financial resources, skills, occupational status and personal capacity to negotiate more optimal employment conditions such as part-time employment or flexible working hours. Similarly, the financial means to access to better quality alternative childcare could potentially alleviate some of the concern and anxiety about leaving their infant to participate in the paid workforce.

However, it is possible that employment participation too soon in early parenting interferes with the development of confident, caring, sensitive maternal functioning, including the formation of an appropriate amount of care, concern and consideration about leaving the infant on a regular basis. Several authors have previously characterised the nature of heightened maternal separation anxiety, describing its association with poorer maternal psychological functioning and intrusive, over-protective, insensitive parenting style (Hock & Schirtzinger, 1992a; Lutz & Hock, 2001; Mayseless & Scher, 2000). The evidence from this investigation supports Benedek's (1970a) and Hock and Schirtzinger's (1992a) contentions that too little maternal separation anxiety is equally indicative of a poor quality mother-to-infant attachment. In this sample, women with lower separation anxiety scores reported a

less strong attachment to their infant's at ten months, and these women were also more likely to have already resumed employment by ten months postpartum.

Although separation anxiety is a reflection of maternal attachment style and women's care-giving capacity, evidence from this, and previous studies suggest that it is also shaped and influenced by social circumstances, and therefore potentially amenable to change via structural or policy interventions (Hock et al., 1988; Hock et al., 1989). For all women in this study, attachment to their infant grew in strength over time, suggesting that given the opportunity through mandated paid maternity leave entitlements, appropriate maternal concern and separation anxiety might continue to develop to optimal levels as the mother-infant attachment grows beyond the ten months postpartum assessed in this investigation.

It is possible then that the current inadequate maternity leave provisions in Australia, necessitating a return to employment too soon in the postpartum, interferes with women's opportunity to develop a sensitive, warm, concerned attachment to their infant, one that includes an appropriate amount of concern and worry about their own feelings, and their infants during regular separations. As well as providing independent income and job security, paid maternity leave allows a mother secure time out of the paid workforce to establish, over time, a relationship with her new infant. The evidence about maternal separation anxiety reported here suggests this time needs to be protected by public policy, so that women can establish their attachment to their infant, prior to having to negotiate the balance between closeness and separation required by paid workforce participation. Contemporary, representative Australian evidence has identified that nearly one in two women resume employment sooner than they would like due to inadequate leave provisions (Whitehouse et al., 2006c; 2008), and that a high proportion of women resume out of necessity rather than choice (Australian Bureau of Statistics, 2006d). The original evidence provided in this study suggests that paid maternity leave would alleviate premature employment resumption for women who prefer a longer absence from the paid workforce, and ultimately protect the developing mother-infant relationship.

It is important to note that relative to other comparable samples of Australian childbearing women, the sample in this study had higher separation anxiety, higher antenatal attachment, and reported more pleasure in interaction with their infants (Condon, 1993; Condon & Corkindale, 1998; Hock et al., 1988). The interpretation of the findings discussed here is presented within this context. Suggesting that the employed women in this sample were poorly attached, or demonstrating inappropriately low levels of concern about their infants would be a misinterpretation of the available evidence. However, there is clearly a spectrum of separation anxiety and mother-infant attachment, and optimally, intervention in the form of social and public policy should aim to strengthen and protect those for whom the development of attachment relationships is more fragile.

Taken together, the above results support the hypothesis that, for this diverse sample of women who were employed antenatally, decisions about employment participation following birth were complex. While preference for postnatal employment was strongly associated with employment participation, women's reduced anxiety about separation from their infant, and about leaving their infant in alternative childcare were also associated with postpartum employment participation.

This is an original contribution to the existing literature that has focussed on the identification of structural and demographic factors related to postnatal employment participation such as maternity leave policy, working hours and maternal age and education (Baxter, 2005a; McGovern et al., 2000; Paull, 2006). The developing mother-infant relationship has been largely ignored in studies of postnatal employment decisions and experiences, and yet these results demonstrate that maternal anxiety and concern about leaving the infant is strongly related to postnatal employment.

### **7.2.3 Contribution of postnatal employment factors to maternal well-being**

It is now accepted that women's perinatal mental health is governed by a broad range of factors including women's circumstances – infant behaviour, social support, partner relationship, adverse events – and structural factors such as socio-economic

position (Beck, 2001; O'Hara & Swain, 1996; Scottish Intercollegiate Guidelines Network, 2002).

Another primary aim of the study was to ascertain whether women's employment, previously ignored in the substantial body of literature investigating maternal mood, is a relevant social determinant of maternal well-being. Multivariate analyses were performed on the primary outcome of standardised assessments of maternal mood (EPDS and PoMS), controlling for known risk factors for worse maternal mood outcomes. Three factors independently associated with worse maternal well-being at ten months were identified – early postpartum mood state, maternal dissatisfaction with current employment and childcare arrangements (Maternal Satisfaction Index), and lower emotional attachment to the infant (Parental Attachment Questionnaire) (Condon & Corkindale, 1998).

#### **7.2.3.1 Established determinants of maternal well-being**

At ten months postpartum, a number of personal and social factors were associated with worse maternal mood, assessed by the EPDS and the PoMS in univariate analyses. These findings confirmed that of existing research (Beck, 2001; O'Hara & Swain, 1996; Scottish Intercollegiate Guidelines Network, 2002), that has identified a less loving, more domineering intimate partner, and the presence of one or more adverse life events since the birth as risk factors for worse postpartum mood. A history of mental health problems is also a well-established risk factor for poorer mood in the postpartum, and in this study, worse mood in the early postpartum was one of only three factors making an independent contribution to worse maternal well-being at ten months in multivariate analyses. Inadequate available emotional and practical support from family, friends and trusted others, although commonly found to be associated with worse maternal mood outcomes (Beck, 2001; Robertson et al., 2004) was not associated with maternal mood scores. This study used a non-validated assessment of social support which may not have adequately captured strengths and deficiencies in women's existing relationships.

Other significant univariate associations were found with factors that have received somewhat less research attention, and for which the evidence is still emerging. Worse

mood has been observed in women of lower socio-economic status (Kermode et al., 2000), and this was demonstrated in this study. Unsettled infant behaviour, including feeding, soothing and settling difficulties is emerging as a significant, relevant risk factor for worse maternal well-being, particularly distress and fatigue (Bayer et al., 2007; Fisher et al., 2004; Hiscock et al., 2007), and this too was supported in this study. It is likely that an unsettled infant, one who cries for long periods or does not settle in spite of persistent attempts to soothe, erodes maternal confidence in her capacity to provide sensitive, and appropriate care to her new infant. Experiencing repeated feelings of inefficacy, combined with fatigue and vital exhaustion is likely to contribute to heightened distress and anxiety.

A representative survey of Victorian mothers who had recently given birth reported an association between worse physical health, and worse maternal mood (Brown & Lumley, 2000). This too was found in the current study, supporting Brown and Lumley's contention that poor physical health, including the presence of multiple physical symptoms, is an ignored, but important factor in considerations postpartum mood. Recovery from pregnancy and birth occur while women make the psychological adjustment to new motherhood, and meet the constant demands of infant care. It is plausible that ongoing health concerns and physical symptoms erode women's capacity to meet these new demands, and contribute to exhaustion, distress and worry.

Women who reported dissatisfaction with their partner's sharing of housework and infant care were more likely to report worse mood than women satisfied with infant care. This suggests that practical support with infant care and the unpaid workload from an intimate partner is an important aspect of adapting to new life circumstances, by sharing the burden of this workload, and by valuing and validating the unpaid work that women do that is typically ignored and under-estimated.

### **7.2.3.2 Maternal satisfaction with employment arrangements**

There were no differences in mood and well-being for women who were and were not employed at ten months postpartum, suggesting that there is no direct relationship between employment participation and postpartum well-being. However, the



specifically-constructed composite measure of maternal satisfaction with current employment and childcare arrangements, the Maternal Satisfaction Index (MSI) had strong, univariate association with maternal well-being at both three and ten months. Women who reported that they were more satisfied with their current employment and childcare arrangements reported better well-being across the first ten months postpartum. This was so regardless of actual employment, as there were no differences in satisfaction rating on the MSI at either three or ten months by employment participation. So, satisfaction with the arrangements, rather than the actual arrangement per se, was the factor identified as associated with maternal mood.

An alternative interpretation of these results is that women who are generally disaffected, rated their workplace satisfaction on the study-specific Maternal Satisfaction Index as poorer, independent of workplace events, characteristics and circumstances. This interpretation would favour a broad explanation that social circumstances are of less relevance to maternal mood, but rather personality and psychological functioning influence engagement with, and interpretation of, life circumstances. The pregnancy mood assessment in this study occurred subsequent to adverse employment circumstances for some participants, so was not an accurate baseline assessment. Additionally, there was no measure of personality, or pre-conception mental health included in this study. It is impossible to attribute a causal direction to the significant relationships between employment characteristics and maternal satisfaction with arrangements observed with complete certainty.

However, analyses of the correlates of maternal ratings of satisfaction with employment and childcare arrangements found that for employed women, a shorter duration of workforce absence was associated with significantly lower maternal satisfaction at three months after the birth. At ten months postpartum, resuming employment out of a concern for having the job revoked or for financial imperative, being employed for more hours per week, and employment in a job that combined poorly with mothering were all significantly associated with less maternal satisfaction on the study specific measure. For non-employed women, being out of the paid workforce due to not being able to secure suitable alternative care for their infant was

also associated with lower maternal satisfaction. Taken together, these results are suggestive that objective structural constraints and employment characteristics contribute to measurably lower maternal satisfaction, which in turn has an effect on maternal psychological well-being.

In order to investigate the relative importance of maternal dissatisfaction with current employment arrangements to worse maternal mood, as assessed by the MSI, multivariate analyses were performed, controlling for other factors that contributed to differences in maternal mood. Even when socio-economic status, adverse life events, partner contribution to unpaid labour, quality of intimate partner relationship, physical health, social support and mood in the early postpartum were controlled for, women's dissatisfaction with their employment and childcare arrangements was the factors most strongly, uniquely associated with worse maternal mood outcomes assessed on the EPDS. Similar results were found for the PoMS. Discretion and choice over employment participation therefore is a powerful, salient factor to postpartum maternal mood.

Previous studies have also suggested a relationship between mothers' access to flexible, optimal employment arrangements and fewer maternal depressive symptoms. American studies have found that a longer maternity leave, fewer and flexible employment hours per week, high job satisfaction and a preference for employment participation were protective against depressive symptoms (Gjerdingen & Chaloner, 1994; Hyde et al., 1995; McGovern et al., 2007). Arrangements constrained by employment or financial factors including prompt resumption soon after birth, prolonged absence from the workforce for women wanting to resume, and being occupied in full-time employment after accessing only a short length of leave have been associated with more anxiety and depression (Hyde et al., 2001; Klein et al., 1998). Available Australian evidence is also indicative of the contribution of satisfying employment arrangements to better maternal well-being. Analysis of data of parents from the Longitudinal Study of Australian Children found that many women resume earlier than they would like to for financial reasons (Whitehouse et al.,

2006c), and that job security, job autonomy and flexibility are associated with better maternal well-being (Baxter, Gray, Alexander et al., 2007).

Eighty-five percent of the seventy-three women in this study who were employed at ten months reported that they were keen to resume employment, and a similar proportion indicated that they returned to their job because their income was necessary. Whether women reported that they were “keen” to resume because they needed the income for their family is not known. However, nearly forty percent reported that they were worried about missing out on job opportunities, and one in five women indicated that they were worried about losing their job, so felt obliged to return. Measurably worse mood was observed in the 22% of employed women who reported that they had resumed employment because they were worried about losing their job, or in the similar proportion that felt a “sense of urgency” to resume employment following birth.

For the 56 women not employed at ten months, maternal dissatisfaction with current employment and childcare arrangements, in this case remaining out of the paid workforce, was the factor most strongly associated with more distress and anxiety (Table 6.60) in the multivariate model. Worse 3-month postpartum EPDS score was the only other factor significantly associated with worse mood at ten months. Univariate analyses suggested that women who remain out of the paid workforce due to structural factors, such as no suitable employment to return to, or having no childcare available to them reported more depressive symptoms than women remaining out of the paid workforce by choice.

In the same manner that poor employment conditions and entitlements are associated with worse mood during pregnancy, the evidence from the postnatal period points to a constellation of employment constraints that also are associated with more postnatal depression and anxiety. It is plausible then that if these constraints, such as job insecurity, inadequate care for the infant, or financial necessity govern employment decisions at the expense of women’s optimal preferences and choice, then increased worry, distress and irritability will result.

The evidence provided in this study contributes to existing literature about the social determinants of maternal mood, as it indicates that employment decisions, pregnancy-related sexual discrimination, maternity entitlements, job insecurity and financial constraints are of high relevance when known determinants of maternal mood were accounted for. Employment characteristics have been previously under-investigated as social determinants of maternal well-being, yet given that 80% of Australian women are employed prior to first birth, it is not surprising that employment factors play a role in influencing maternal psychological functioning during the transition to motherhood.

### **7.2.3.3 Mother-infant emotional attachment**

The other factor independently associated with maternal well-being at ten months was the strength and nature of women's emotional bond, or attachment, with her infant. This psychological construct has not been widely investigated in studies of maternal employment and postnatal well-being (Gjerdingen & Chaloner, 1994; Hyde et al., 1995; Klein et al., 1998; Leathers et al., 1997), nor has the developing relationship with the infant been included in studies conceptualising women's postpartum well-being (O'Hara & Swain, 1996; Scottish Intercollegiate Guidelines Network, 2002).

It is important to note that while there were measurable differences in both maternal attachment assessed using the Antenatal Attachment Scale (AAQ) and the Postnatal Attachment Scale (PAQ) (Condon, 1993; Condon & Corkindale, 1998) between participants, the sample as a whole had significantly higher attachment in pregnancy and following birth than reported in comparison samples of Australian women (Condon, 1993; Condon & Corkindale, 1998). Overall this cohort of women was strongly emotionally attached to their infants. However, there remains a continuum of attachment, with the higher range of scores characterised by optimal psychological functioning, and the lower by poorer mood.

The findings of this study confirm that a mother's attachment to her child begins in pregnancy and grows in intensity and strength over the course of the first postpartum year. A frequent, warm, affectionate pre-occupation with the foetus was associated with a stronger emotional attachment to the infant at three and ten months postpartum.

Overall, the sample demonstrated a stronger emotional closeness to their infant at ten months than at three months, suggesting that this bond grows and develops across the first postpartum year. The degree to which attachment relationships are fixed early in life, or shaped by experience and amenable to change is debated (Feeney et al., 2003). This study provides evidence that women's emotional attachment to her infant, while an aspect of personality and psychological functioning, is not fixed. Optimally by ten months postpartum, mothers will have attained a sense of competence and mastery of many of the skills of infant care, enjoying growing confidence and satisfaction. In addition, as the infant becomes more responsive, the opportunities for interaction, play, and mutual enjoyment and closeness between the mother and her infant are more varied compared to earlier infancy. It is plausible that these influence the strength of mothers' attachment to her infant, and contribute to the increasing emotional closeness developed in this sample across the postpartum year.

At ten months, women who reported a less warm, affectionate emotional bond with their infant were also more likely to report significantly worse mood on the two standardised assessments of maternal well-being. In order to better understand the nature of the observed variations in mood according to the quality of mother-infant attachment at ten months, the sample was divided, according to scores on the PAQ, into groups of lower, medium and higher attachment. Participants reporting medium and higher PAQ scores had similar mood and well-being. However, women who had a less affectionate, warm attachment to their infant experienced more depressive symptoms, more anxiety and more anger and hostility throughout the study. This evidence replicates the findings reported in the development study of the PAQ (Condon & Corkindale, 1998) and in another prospective investigation examining the correlates of lower maternal-infant attachment at two months postpartum (Edhborg et al., 2005).

Attachment researchers have provided evidence that adults whose attachment style is insecure or anxious are more vulnerable to clinical depression due to their compromised ability to form warm, reciprocal, satisfying emotional bonds with others (Bifulco et al., 2004; Bifulco et al., 2002). This is heightened during times of crisis

and transition such as following the birth of a baby, when insecurely attached adults have not formed the trusting, supportive relationships that may offer the emotional support now known to be protective against adverse mood outcomes. The findings of this study provide some support for this conceptualisation. Women who were less attached to their infants at ten months also reported less caring, less supportive intimate partner relationships, which may predispose women to distress, sadness and isolation. There were no differences between women in the lower, medium and higher attachment groups in available emotional and social support from family and trusted others, yet this study used a non-standardised assessment of social support which may not have characterised available social support adequately. Overall, it appears however that women with a compromised capacity to form warm, affectionate attachment relationships were vulnerable to worse mood outcomes in the postpartum period. It is also possible however that attachment and mood are individual but correlated aspects of broader psychological functioning, and that depression and anxiety influenced women's capacity to form an optimal attachment to their infant.

Attachment theory has conceptualised a framework wherein the ability to form close, loving and reciprocal relationships is formed in early childhood, shaped by formative care-giving relationships (Ainsworth & Wittig, 1969; Bowlby, 1973). The degree to which this ability is altered and shaped over the life-course according to experiences is less well understood. However, it is known that women's experiences of receiving care in childhood from their own parents will govern their capacity to form close, trusting, reciprocal adult relationships, and will influence the nature of their infants' attachment to them (Fonagy et al., 1991; Main, 1996; Slade et al., 2005). It is likely therefore that early experience of attachment relationships also governs their capacity to provide sensitive, warm, affectionate care to their infant. In this study, women reporting comparatively low attachment to their infant at ten months had less frequent, affectionate thoughts about their unborn baby in pregnancy, less concern about separation from their infant assessed on the Maternal Separation Anxiety Scale (Hock et al., 1989) and a less caring, warm relationship with intimate partner.

Taken together, these results are suggestive of a sub-group of women who, due to their own mixed or adverse experiences of being nurtured and cared for, are vulnerable to experiencing less affectionate adult attachments, including a less warm and caring relationship with an intimate partner. Similarly, this group of women are also likely to have a compromised capacity to form a strong emotional bond with their own baby, and less concern and anxiety about separation from their infant. In this study, these differences could be identified in pregnancy. Less affectionate, frequent thoughts about the unborn baby were observed in women who, at ten months, reported a comparatively low attachment to their infant. Compromised attachment was independently associated with postpartum mood disturbance, suggesting that mothers' capacity to develop an emotional bond with their infant is a factor needing to be included in future investigations of the relationship between employment and maternal postpartum well-being.

## **7.3 CONCLUSIONS**

### **7.3.1 Workplace and public policy**

Maternity leave, paid and unpaid, is poorly accessed and inequitably provided in Australia. Unpaid maternity leave, a statutory provision in Australia, was accessed by only two thirds of the sample, at a comparable rate to those reported in existing studies. This is indicative that many women are ill-informed about their rights to this entitlement, and ignorant of their legal rights to negotiate this leave with their employer. Improved education for both employers and employees, and routine monitoring of workplace provision of unpaid leave will remove the emphasis on individual employee knowledge and negotiation on which access to unpaid maternity leave currently rests.

Paid maternity leave was inequitably provided to women in professional, para-professional and managerial occupations, rendering those in less-skilled, more poorly remunerated occupations more vulnerable to having no independent income to support their absence from the paid workforce. Paid maternity leave protects employment security, provides income substitution allowing new mothers relief from

immediate financial imperative to allow them to care for their infant, establish breastfeeding and the skills required to nurture a new baby. The findings of this study, begun when there was public advocacy, but no plans for a government-funded paid maternity leave scheme, confirms the importance of paid maternity leave for Australian women, and the relevance of a federal Paid Parental Leave scheme planned for introduction in Australia in 2011 (Department of Education, Employment and Industrial Relations, 2009).

The evidence about maternal separation anxiety provided by this investigation also suggests that the provision of paid maternity leave, to relieve the financial incentive for women to resume employment in the first year following birth, may also enhance the development of optimal maternal-infant relationships. The maternal-infant relationship in this study was operationalised via the assessment of maternal separation anxiety, and mother-to-infant attachment. Of these two distinct, but related psychological constructs, maternal separation anxiety interacted with social circumstances, and is therefore potentially responsive to the context provided by public policy intervention. Women with lower separation anxiety in this study resumed in the paid workforce sooner than those reporting higher separation anxiety, and lower separation anxiety was also associated with a less affectionate quality of attachment to the infant. Providing a reasonable absence from the paid workforce following birth, through the provision of a paid maternity entitlement, is likely to maximise women's opportunity to develop a sensitive, affectionate, responsive attachment to their infant, one that is commensurate with an optimal amount of concern for their own, and their child's well-being during regular episodes of separation. There is consensus that attachment relationships are of crucial importance, and that mother-infant attachment has lifetime implications for the child. The findings of this study provide one means through which this integral relationship can be protected by public policy.

This is of particular relevance in Australia, where the current socio-political climate in which women give birth is commonly one in which both parents are employed, and necessitated to make alternative care arrangements for their children. While



international studies have suggested that extended hours in non-parental care are associated with adverse developmental outcomes for children (Belsky, 1990, 2002), the evidence about children's experience of non-parental care, particular to Australia's social, educational and regulatory environment, is still emerging (Harrison and Ungerer, 2005; Richardson, 2005).

In the current absence of any evidence-based advice, parents must make decisions about the extent of their use of non-parental care, within the external constraints imposed by their employer, and the current policy context that provides limited access to parental leave provisions. All parents desire optimal circumstances and the best care for their children. It is difficult for new mothers to negotiate these decisions however when external circumstances mean that they must occur prematurely, when maternal identity and the mother-infant relationship are still emerging. A secure, protected absence from the paid workforce, the optimal interval which has yet to be identified, is likely to ensure that women can make informed decisions for themselves and their families, having had the opportunity to establish capacity for the appropriate negotiation of closeness and separation with their infant.

This study also confirms that pregnancy-related sexual discrimination is common, reported by one in five pregnant Australian women, which is probably an underestimate. Many pregnant women are in a vulnerable position in the paid workforce, as they need to negotiate a period of leave combined with a secure job to resume at following the birth. The likelihood of pursuing a formal complaint against illegal, harassing and discriminatory behaviour within this context is small. Public education and policies therefore are needed to protect the rights of employees, educating against illegal and discriminatory behaviour, and protecting women's rights to experience workplace safety, equitable opportunities and employment security during pregnancy, and after a period of maternity leave.

Most of the women who resumed employment in this study returned to a part-time or casual position, even when employed full-time in pregnancy. Participants indicating a preference for employment after the birth over full-time infant care preferred part-time, rather than full-time employment. However, the right to return to a part-time

position is not currently protected under maternity leave provisions, reliant on employer goodwill and discretion. Advocating for the right to resume to part-time occupation is a useful expansion to current and pending parental leave policy.

### **7.3.2 Perinatal mental health**

The evidence provided here illuminates previously under-investigated characteristics of women's social and structural circumstances that contribute to worse perinatal mental health. Existing evidence suggests that maternal mood is governed by a range of interacting factors, both external and structural, and those intrinsic to the mother. In this study, new evidence was provided about two of these interacting factors, employment characteristics and maternal-infant attachment.

Broadly, a constellation of adverse employment characteristics including discrimination, no maternity entitlements, a shorter leave duration, limited discretion about when to resume employment and limited access to non-parental childcare were reported in this study. Maternal satisfaction with employment and childcare arrangements was particularly low in women reporting shorter leave duration, longer employment hours and a lack of access to non-parental childcare. Lower maternal satisfaction in turn was associated with worse perinatal mental health, indicating that observable, employment characteristics have an independent influence on maternal psychological well-being.

Given that many Australian women combine their childbearing and early parenting with participation in the paid workforce, employment characteristics and maternal employment preferences have been identified as relevant factors, necessary for inclusion into future studies of perinatal mental health and well-being.

As well as structural influences, women's capacity to form a warm, affectionate attachment to their infant proved to be relevant to maternal postpartum psychological well-being. Women reporting relatively lower affection and attachment to their infants also reported more depressive symptoms in the postpartum than women reporting comparatively stronger attachment to their infants. The relationship between the quality of attachment relationship and depressive symptoms has been observed in

adult relationships and increasingly in studies of postpartum depressive disorders. The evidence provided here suggests that maternal-infant attachment is another factor that contributes to postpartum well-being and adjustment to mothering, and inclusion of this developing relationship in future research identifying risk factors for poorer mood, particularly in the context of maternal postpartum employment, is warranted.

Maternal attachment to her infant influenced, but not wholly, the degree to which mothers reported separation anxiety. Unlike separation anxiety, maternal-infant attachment was not influenced by social circumstances assessed in this study, but rather increased over time, possibly influenced by psychological factors such as the attainment of maternal confidence, competence and identity as a mother. Separation anxiety however was influenced both by the nature of maternal-infant attachment, and by social circumstances, particularly socio-economic position. To date, this relationship between attachment and separation anxiety in mothers of infants has been poorly understood.

While all of the women in this study reported comparable or higher attachment to their infants and more separation anxiety than that reported in other studies, there appears to be a group of women for whom the development of a warm, affectionate attachment to their infant is compromised, or at least hampered until ten months postpartum. It is likely that this is due in part due to women's own early experiences and further shaped in adulthood. It was not the purpose of this study to investigate the effect of this on the infant. However, the relationship between lower attachment to the infant and worse maternal well-being found in this study is of import to maternal mental health and well-being and is deserving of further consideration and investigation on these grounds.

The purpose of this study was to examine the determinants of women's employment participation in the postpartum, and the effect of employment decisions, arrangements and conditions on perinatal mental health. Maternal employment decisions were complex, influenced by preference, employment constraints, and considerations about infant care and separation. Maternal mental health in pregnancy and the postpartum was also multi-factorially governed by a range of personal and social circumstances,

including employment characteristics. Together, these results suggest that employment is relevant to maternal health and well-being across adjustment to parenthood for contemporary Australian women.

In conclusion, this original study provides evidence about the measurable relationship between employment participation, and maternal mental health and well-being. This well-designed, systematic investigation of a contemporary cohort of Australian child-bearing women has highlighted the importance of adequate maternity leave and policy provision to allow women to negotiate optimal employment conditions for themselves and for their families at this unique life stage. For women who become mothers, the birth of a first child heralds the beginning of ongoing interruption to their employment participation, and this has long-term implications for their job opportunities and their lifetime earnings. Optimally, social and public policy can ameliorate some of these adverse implications. Universal paid maternity leave protects women's immediate job security, income, and as the findings of this study suggest, the developing mother-infant relationship. Similarly, improved access to affordable childcare, and flexible workplace "family-friendly" policies are means through which policy provisions can protect women's workforce participation in the longer-term. Women's employment participation is necessary across adult-life for their own health and well-being and financial security, and contributes to economic growth and social inclusion. Without adequate policy however, women disproportionately bear the costs of the current challenges of combining employment and motherhood.

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## **APPENDICES**



## **APPENDIX A**

### **PARTICIPANT PLAIN LANGUAGE STATEMENT**



The Royal Women's Hospital

132 Grattan Street, Carlton, Victoria, 3053, Australia

**Participant Information and Consent Form  
Version 1 Dated 20 September 2005  
Royal Women's Hospital, Carlton Victoria**

**Full Project Title: Mothers' Paid Employment Following Childbirth**

Principal Researcher: Dr Jane Fisher

Associate Researcher(s): Ms Amanda Cooklin, Dr Heather Rowe and Dr Penny Sheehan

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This Participant Information and Consent Form is 6 pages long. Please make sure you have all the pages.

**1. Your Consent**

You are invited to take part in this research project.

This Participant Information contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project before you decide whether or not to take part in it.

Please read this Participant Information carefully. Feel free to ask questions about any information in the document. You may also wish to discuss the project with a relative or friend or your local health worker. Feel free to do this.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project.

You will be given a copy of the Participant Information and Consent Form to keep as a record.

**2. Purpose and Background**

The purpose of this project is to investigate the personal, family and workplace factors that contribute to mothers' decisions about paid employment. We are interested in the plans you make for yourself and your baby during pregnancy, and any decisions or arrangements you make after your baby's birth. In addition,

we are interested in the ways in which these decisions influence your physical health and emotional well-being in the first year after your baby's birth. The results of this research will help us to make recommendations about maternity leave and childcare arrangements. The findings will be distributed in academic journals and to relevant health providers and policy makers.

A total of 165 people will participate in this project.

Previous experience has shown that women make important decisions about their paid employment during pregnancy for the first year of their baby's life. There has been little research about how women make these decisions as they become mothers for the first time, or how they feel about these decisions.

You are invited to participate in this research project because you are expecting your first child in a few weeks, and have had to make some decisions about your paid work during pregnancy and in preparation for when you have your baby.

The results of this research may be used to help researcher Amanda Cooklin to obtain a PhD from the Key Centre for Women's Health in Society, University of Melbourne.

### **3. Procedures**

Participation in this project will involve:

1. An initial interview that will take approximately 10 minutes to complete. This interview will ask you about your current circumstances, and any plans you have made for your job and childcare after your baby's birth. At this time you will also be requested to complete a series of written questions about your health, your well-being and your feelings about your unborn baby.
2. When your baby is three months old and ten months old, follow-up questionnaires will be posted to you at home. These questionnaires will ask about your pregnancy and childbirth, current work and childcare arrangements, your health and well-being, your feelings about your current arrangements, your relationship with your partner and about daily life with your baby. We will ask that you return these questionnaires to us in a reply paid envelope that we will provide. It is estimated that these two questionnaires will take no more than 30 minutes each to complete.

There are no right or wrong answers. We are interested in YOUR responses to the questions in this study.

### **4. Possible Benefits**

The information collected in this research will be of benefit to other pregnant women and their families in the future. From the results of this study, we will be better able to give advice about family policy, maternity leave, and workplace and childcare arrangements for families with children under one year of age. We cannot guarantee that you will receive any direct benefits from this project, although women usually like describing their experiences of early motherhood.

## **5. Possible Risks**

The risks of participation in this project are regarded as minimal. However, in the unlikely event that you find responding to these questionnaires to be upsetting, you will be advised to contact Dr Jane Fisher, Principal Investigator on this project and Clinical Psychologist specialising in perinatal mental health for appropriate suggestions for follow-up care. Should undue psychological distress be detected in your responses to the questionnaires, Dr Fisher will contact you to make suggestions for follow-up care. You will be asked to indicate whether or not you consent to this on the written consent form provided. You are free to suspend or end your participation in this project at any time should distress occur.

The only inconvenience is likely to be the time taken to complete the interview and the written questionnaires. We will try to complete the first interview and set of questionnaires during your waiting time at the clinic. The two follow-up questionnaires will be completed at your convenience at home.

## **6. Privacy, Confidentiality and Disclosure of Information**

You will be asked not to put your name or any identifying details on the questionnaires that you complete. Instead, you will be given a code number to identify your questionnaires. We will collect your address and phone number(s) so that we can contact you for the postage of the second and third questionnaires, but these personal details will be stored separately in a locked cabinet so that they cannot be matched up to your responses to the questionnaires. The data will be entered into password-protected computer file that can only be accessed by the researchers. The completed questionnaires will be stored in locked cabinets at the Key Centre for Women's Health in Society, University of Melbourne for a period of five years, after which time they will be destroyed.

Any information obtained in connection with this project and that can identify you will remain confidential. It will only be disclosed with your permission, except as required by law.

If you give us your permission by signing the Consent Form, we plan to publish the results of this study in relevant peer-reviewed journals and scientific conferences. In any publication, information will be provided in such a way that you cannot be identified.

## **7. Results of Project**

You will be asked if you are interested in receiving a summary of results when the study is completed. If you are interested, we will send a summary to the address that you provide.

## **8. Further Information or Any Problems**

If you require further information or if you have any problems concerning this project, you can contact the principal researcher Dr Jane Fisher, or Ms Amanda Cooklin at the Key Centre for Women's Health in Society, University of Melbourne, phone (03) 8344 4333.

## **10. Other Issues**

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a research participant, then you may contact

Position: The Patient Representative, The Royal Women's Hospital

Telephone: 9344 2351

You will need to tell the Patient Representative the name of one of the researchers given in section 10 above.

## **11. Participation is Voluntary**

Participation in any research project is voluntary. If you do not wish to take part you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any stage.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your routine treatment, your relationship with those treating you or your relationship with The Royal Women's Hospital.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please notify a member of the research team before you withdraw. This notice will allow that person or the research supervisor to inform you if there are any health risks or special requirements linked to withdrawing.

## **12. Ethical Guidelines**

This project will be carried out according to the *National Statement on Ethical Conduct in Research Involving Humans* (June 1999) produced by the National Health and Medical Research Council of Australia. This statement has been developed to protect the interests of people who agree to participate in human research studies.

The ethical aspects of this research project have been approved by the Human Research Ethics Committees of The Royal Women's Hospital and the University of Melbourne..

## **13. Reimbursement for your costs**

You will not be paid for your participation in this project.



The Royal Women's Hospital

132 Grattan Street, Carlton, Victoria, 3053, Australia

**Consent Form**  
**Version 1 Dated 20 September 2005**  
**Royal Women's Hospital, Carlton, Victoria**

**Full Project Title: Mothers' Paid Employment Following Childbirth**

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I have read and I understand the Participant Information version 1 dated 20-09-05.

I freely agree to participate in this project according to the conditions in the Participant Information.

I will be given a copy of the Participant Information and Consent Form to keep.

The researcher has agreed not to reveal my identity and personal details if information about this project is published or presented in any public form.

I consent to being contacted to Principal Investigator in this study Dr Jane Fisher if my responses reveal serious emotional distress during the course of this project.

Participant's Name (printed) .....

Signature

Date

Name of Witness to Participant's Signature (printed) .....

Signature

Date

Researcher's Name (printed) .....

Signature

Date

*Note:* All parties signing the Consent Form must date their own signature.





The Royal Women's Hospital

132 Grattan Street, Carlton, Victoria, 3053, Australia

**Revocation of Consent Form**

**Full Project Title: Mothers' Paid Employment Following Childbirth**

I hereby wish to WITHDRAW my consent to participate in the research proposal described above and understand that such withdrawal WILL NOT jeopardise any treatment or my relationship with The Royal Women's Hospital.

Participant's Name (printed) .....

Signature

Date



## **APPENDIX B**

### **PARTICIPANT CONTACT DETAILS FORM**

**MOTHERS' PAID EMPLOYMENT FOLLOWING  
CHILDBIRTH**

**The following information will be treated confidentially and stored separately to your responses to the questionnaires**

**PARTICIPANT CONTACT DETAILS**

**Name**

**Postal Address**

**Home Phone**

**Mobile Phone**

**Work phone**

**Partner's mobile**

**Email**

**RELATIVE OR FRIEND CONTACT DETAILS**

**Name**

**Contact Phone Number(s)**

**Relation to you**

**I would like a summary of the results of this study    Yes / No**

**Date completed**

**APPENDIX C**

**FRANCES PERRY HOUSE FLYER FOR CHILDBIRTH  
EDUCATION STAFF**



## **Mothers' Paid Employment after Childbirth**

### **To all Childbirth Educators, Frances Perry House**

The MPEAC Study is coming to Frances Perry House antenatal education classes!

The purpose of this project is to investigate the personal, family and workplace factors that contribute to mothers' decisions about paid employment after the birth of their first baby. This is the first project in Australia to investigate mothers' employment decisions AND their emotional well-being at the time of the birth of their first baby systematically. We are interested in the plans employed mothers make during pregnancy, and any decisions or arrangements they make after their baby's birth. In addition, we are interested in the ways in which these decisions influence women's physical health and emotional well-being in the first year after childbirth. The results of this research will help us to make recommendations about maternity leave and childcare arrangements.

A total of 170 people will participate in this project; 100 women from RWH have already completed their pregnancy interview. It is very important to us to have women from a range of social circumstances, and we are very excited about hearing from women booked to have their baby at Frances Perry House!

Our participants are pregnant with their first baby, employed, but not necessarily fulltime on a continuing basis throughout most of their pregnancy and able to complete written materials in English.

A member of the research team will attend FPH antenatal classes throughout Feb 2006. Before the first break, with your co-operation we will present a 2-3 minute description of the project to the class. During the break, individual women will be invited to participate and names and contact details will be collected. Participants will then be followed up by telephone in the week after their class.

Over the course of the study participants will be asked to complete a brief telephone interview and 3 written postal questionnaires, one in pregnancy and others at 3 and 10 months after their baby's birth.

The Investigators in this project are members of the Key Centre for Women's Health in Society, University of Melbourne, and members of the Pregnancy Research Centre, The Royal Women's Hospital.

The researchers attending antenatal classes at Frances Perry House will be:

Ms Amanda Cooklin and Ms Lara Williamson

Key Centre for Women's Health in Society

The University of Melbourne

Phone 8344 4333 or email Amanda [a.cooklin@pgrad.unimelb.edu.au](mailto:a.cooklin@pgrad.unimelb.edu.au)

We look forward to meeting with you and being a part of the team. Thank you for your support and see you in class!

**APPENDIX D**

**ELIGIBILITY FORM FOR FPH CHILDBIRTH EDUCATION  
CLASSES**



## Mothers' Paid Employment Following Childbirth

**PLEASE TICK ONE OF THE FOLLOWING:**

I am happy to participate in this study (please fill out your details overleaf)

OR if you are not participating, please indicate below:

I do not wish to participate in this study

I have not been employed throughout my pregnancy / I ceased my employment at less than 20 weeks gestation

This is not my first baby

Thank you!

Please return these forms to the pink box provided



## **APPENDIX E**

### **TIME 1: STRUCTURED INTERVIEW**

# MOTHERS' PAID EMPLOYMENT FOLLOWING CHILDBIRTH

Ms Amanda Cooklin, Dr Jane Fisher, Dr Heather  
Rowe & Dr Penny Sheehan

## TIME ONE: STRUCTURED INTERVIEW SCHEDULE

Code Number \_\_\_\_\_

Date \_\_\_\_\_

**A: The first few questions ask you some information about your personal circumstances**

1. How old are you in years? \_\_\_\_\_
2. How old is your baby's father in years? \_\_\_\_\_
3. What is your current marital status? \_\_\_\_\_
4. What is the expected date of birth of your baby? \_\_\_\_\_
5. Currently weeks gestation \_\_\_\_\_
6. In which country were you born? \_\_\_\_\_
7. In which country was your baby's father born? \_\_\_\_\_
8. What is the highest level of education you have completed so far?  
\_\_\_\_\_
9. What is the highest level of education your baby's father has completed so far?  
\_\_\_\_\_
10. What is your main occupation? \_\_\_\_\_
11. Are you currently self-employed? \_\_\_\_\_

12. What is your baby's father's main occupation? \_\_\_\_\_

**B: The following questions ask about your current job and any plans that you may have made for paid work after the birth of your baby**

13. Is your current paid employment

- N/a I commenced maternity leave at \_\_\_\_\_ weeks gestation
- Full-time \_\_\_\_\_ hrs / week
- Part-time \_\_\_\_\_ hrs / week
- Casual \_\_\_\_\_ hrs / week

14. If you are still participating in paid work, at what stage in your pregnancy do you plan to finish before your baby's birth?

\_\_\_\_\_ weeks gestation

15. Please indicate to what degree you agree with the following statements:

**My life would not be complete without my job / career**

- Strongly agree
- Agree
- Mixed feelings
- Disagree
- Strongly disagree

**My job / career brings me a lot of personal satisfaction**

- Strongly agree
- Agree
- Mixed feelings
- Disagree
- Strongly disagree

16. How much time away from your paid employment do you plan to have immediately after your baby is born?

- \_\_\_\_\_ weeks / months
- N/a I do not plan to return to my paid employment
- Undecided

Please elaborate \_\_\_\_\_  
\_\_\_\_\_

17. Please state how much of this leave (if any) is paid leave: \_\_\_\_\_ wks/mths

18. Is your planned period of leave:

Formal leave (please specify eg: maternity leave, annual leave etc)

Informal leave \_\_\_\_\_

Combination (please describe) \_\_\_\_\_

No entitlements

N/a (please elaborate) \_\_\_\_\_

19. When do you plan to return (if more than 12 months)?

20. Do you plan to return to this same employer in your baby's first year of life?

N/A

No

Yes

Undecided (please elaborate)

21. Do you plan to return to the same job in first 12 months?

N/A

No

Yes

Undecided (please elaborate) \_\_\_\_\_

22. Do you plan to return in first 12 months:

N/A

full-time \_\_\_\_\_ hrs / week

part-time \_\_\_\_\_ hrs / week

casual \_\_\_\_\_ hrs / week

undecided

23. (If relevant): Right now, how do you feel about leaving your baby to return to paid employment in first 12 months of life?

Very confident

Mostly confident

Somewhat worried

Very worried

N/A I plan to be with my baby full-time

24. How many weeks old do you think your baby will be when you will feel comfortable enough to leave him / her in someone else's care (not including partner)?

\_\_\_\_\_ weeks

25. At any stage during your pregnancy, did you feel that you were deliberately overlooked / disadvantaged / treated differently in your job as a result of your pregnancy?

No       Yes       Sometimes

Please describe \_\_\_\_\_  
\_\_\_\_\_

26. How many hours of DIRECT care (eg: feeding, bathing, changing) do you think your baby will need from you each day in the first three months after the birth?

\_\_\_\_\_ hours per day

27. What are your partner's views about your plans for employment that you have described to me above?

\_\_\_\_\_  
\_\_\_\_\_

28. What are your mother's views about these plans?

\_\_\_\_\_  
\_\_\_\_\_

29. In general, how would you describe your employer's attitude towards you while you were making arrangements for time away from your job following your baby's birth?

\_\_\_\_\_  
\_\_\_\_\_

**C: The next questions ask you to think about any arrangements you have made for childcare for your baby.**

**30. What type(s) of childcare (if any) do you think you would most like to use for your baby in the first year of his or her life? (you may answer more than one)**

- N/A I plan to care for my baby full-time
- My partner plans to care for my baby full-time
- My partner and I plan to share the care of our baby
- Relative or family friend at home
- Nanny or baby sitter at home
- Long daycare centre
- Family daycare
- Other (please describe) \_\_\_\_\_
- Undecided

**31. Have you already arranged any childcare for your baby after the birth?**

- Yes                       No

**If yes:**

**Please describe with whom you have made these arrangements**

\_\_\_\_\_

For \_\_\_\_\_ days / hours per week  
Including a formal booking?  yes                     

**Do you plan to use any childcare for your baby after 12 months?**

\_\_\_\_\_

**D: Now I'm going to ask you a few questions about how you intend to feed your baby**

**25. How do you plan to feed your baby?**

- Bottle feed (formula)
- Both breastfeed and bottle feed
- Breastfeed for a few days
- Breastfeed for less than one month
- Breastfeed for 1-3 months
- Breastfeed for 4-6 months
- Breastfeed for 6 months or longer
- Breastfeed, but no plans for how long
- Not sure about this

**26. Is there anything we have discussed that you would like to elaborate on?**

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**Thank you very much – this is the end of the interview.**

**Please complete the written questionnaire booklet provided and return it to me here in the hospital. If you run out of time, I will give you a reply paid envelope to return it to me after you have completed it at home.**





## **APPENDIX F**

### **TIME 1: SELF-REPORT QUESTIONNAIRE**



## **APPENDIX G**

### **TIME 2 AND 3: SELF-REPORT QUESTIONNAIRE**



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**Author/s:**

Cooklin, Amanda Ruth

**Title:**

Women's employment in pregnancy and following birth: effect on psychological well-being

**Date:**

2010

**Citation:**

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