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ORIGINAL ARTICLE

Parental care and control during childhood: associations with maternal perinatal mood disturbance and parenting stress

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Abstract This study examined the associations between perceived parental care and control in childhood and maternal anxiety, depression and parenting stress during the transition to parenthood. Eighty-eight women completed the Parental Bonding Instrument, self-report measures of anxiety and depression and a structured diagnostic interview (Mini-plus International Neuropsychiatric Interview) during the third trimester of pregnancy. The MINI-Plus and anxiety and depression measures were re-administered at 7 months postpartum. The Parenting Stress Index was also administered at this time. Significant associations were found between maternal 'affectionless control' and prenatal and postnatal symptom measures of anxiety and depression, p values <0.005. Compared to women who reported optimal parenting, women who recalled maternal 'affectionless control' were also six times more likely to be diagnosed with an anxiety disorder during pregnancy (OR=6.1, 95 % CI=2.17–30.11) and seven times more likely to be diagnosed with postnatal major depression (OR=6.8, 95 % CI=1.80–25.37). Paternal 'affectionless control' was associated with significantly higher scores on symptom measures of prenatal and postnatal anxiety, p values <0.005. This study suggests that assessing a woman's own parenting history is important in identifying and managing the risk of prenatal and postnatal affective disorders and parenting stress.

Keywords Prenatal · Postnatal · Anxiety · Depression · Risk

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Introduction

The transition to parenthood is a major life stage that is associated with many changes, including substantial physiological changes, changes in family and social roles, disruptions in close relationships and adjustment to the parenting role. This transition is widely acknowledged as a period of increased vulnerability, and significant levels of emotional and psychological upheaval may be experienced during this time (Morse et al. 2000). For some women, it is also a period associated with increased vulnerability to clinically significant mental health disturbances. Indeed, prenatal and postnatal mental health problems are recognised as a major public health issue in Australia with 29.2 % of childbearing women likely to develop a depressive or anxiety disorder in the first 6–8 months postpartum (Austin et al. 2010).

Although anxiety and mood disturbances are to be expected during important life transitions, psychopathology

during the perinatal period is of particular concern, with studies showing suboptimal outcomes for both mother and baby. Maternal anxiety and mood disturbances during pregnancy have been linked to changes in foetal neurobehaviour (DiPietro et al. 2002), difficulties adjusting to the maternal role (Barnett et al. 1991) and suboptimal emotional, behavioural and cognitive outcomes in infants and children (Talge et al. 2007).

Several studies have examined prenatal and postnatal mood and stress, but few account for caregiving history (Leigh and Milgrom 2008). Dysfunctional parenting early in life has been identified as an important risk factor in the development of psychopathology in adulthood (Gladstone and Parker 2005). Although it is likely that numerous genetic/dispositional and environmental factors influence the pathway to psychopathology, there is evidence to suggest that a mother's parenting history during her own childhood may make an independent contribution (Miller et al. 1997).

Despite implications for both maternal and infant well-being, relatively few studies have examined associations between maternal perceptions of parenting (from both mother and father) and the presence of anxiety and mood symptoms during the transition to parenthood. There is a small literature to suggest that a parenting style characterised by low care and/or high control (affectionless control) may place women at risk of the onset (Boyce et al. 1991; Matthey et al. 2000) and persistence (McMahon et al. 2005, 2008) of postnatal depression in childbearing women. Although anxiety symptoms and disorders are also common during pregnancy and the postpartum year (Austin et al. 2010; Matthey et al. 2003), little is known about links between caretaking history and anxiety disorders in the perinatal period.

This study examines the extent to which women's perceptions of their childhood caretaking are associated with anxiety and depression in the perinatal period. Further, we extend current work on perinatal mood disorders by also exploring the more specific construct of parenting stress. Parenting stress refers to specific difficulties in adjusting to the parenting role, reflecting parents' conscious perceptions of their child, their relationship with their child and themselves as parents (Abidin 1995). High levels of parenting stress have been found to be related to parents' use of harsh disciplinary behaviours (Pinderhughes et al. 2000) and low levels of parental warmth and reciprocity (Haskett et al. 2006) and are possibly related to abusive behaviours toward the child (Haskett et al. 2006; Holden and Banez 1996; Rodriguez and Green 1997). Additionally, it has been suggested that parents who report high levels of stress also report poor overall emotional health (Reitman et al. 2002).

In the present study, we predicted that women who recalled a parenting history characterised by low care and high control (affectionless control) would be most likely to report elevated symptoms of anxiety and depression during the perinatal period and/or to meet criteria for an anxiety or mood disorder. We also expected low care and high control to be associated with higher levels of parenting stress during the postnatal period.

Methods

Participants

Participants were women taking part in a prospective study investigating the influence of maternal prenatal psychological state on foetal behaviour and subsequent child development (Grant et al. 2008). They were recruited consecutively while attending their first prenatal health care visit at a large obstetric hospital in Sydney, Australia (M=15.09 weeks gestation, SD=4.22). English-speaking women with singleton, uncomplicated pregnancies and with no known substance/alcohol abuse problems or chronic psychiatric disorders (e.g. bipolar disorder, schizophrenia) were eligible to participate. Further screening based on an Antenatal Risk Questionnaire (ANRQ) (Austin et al. 2011) yielded a stratified sample in which women at highest risk for perinatal mood disorder were over-represented. One hundred forty-nine women were enrolled in the present study, of whom 56.4 % (n=84) were identified as 'high risk' using a cut-off score of 23 on the ANRQ. All women provided written informed consent.

Procedures

Anxiety and depression were assessed during the third trimester of pregnancy (M=36.93 weeks, SD=0.78) using both clinical diagnostic interview and self-report questionnaires. The Parental Bonding Instrument (PBI) (Parker et al. 1979) was also completed at this time. Birth outcomes and other obstetric data were obtained from hospital medical records. The clinical interviews and self-report anxiety and mood measures were re-administered at 7 months postpartum (M=31.66 weeks, SD=2.6) together with the Parenting Stress Index (PSI).

Measures

Antenatal risk assessment

The ANRQ is a brief psychosocial assessment questionnaire completed by all women booking in to antenatal clinics at the Royal Hospital for Women, Sydney. It was used in the present study to guide the selection of a sample in which women at high and low risk for postnatal mood disturbances were equally represented. The questionnaire asks about

psychosocial risk factors known to be associated with the onset of perinatal distress, including current major stressors and losses, anxiety and history of depression. The ANRQ is an antenatal screening tool validated against the Composite International Diagnostic Interview (CIDI) (World Health Organisation 1997) for the identification of women at risk for postnatal mood disorders (Austin et al. 2011).

Parental bonding instrument

The PBI (Parker et al. 1979) is a widely used, 25-item self-report measure for assessing the subjective experience of being parented during the first 16 years of life. The 25 items are rated separately for mothers and fathers to yield a 'care' (12 items) and 'control' (13 items) scale for each parent. Care is defined by emotional warmth, acceptance and empathy, while control suggests parental overprotection and intrusion. Additionally, scores may be assigned to quadrants reflecting variations in care and control: (1) high care/low control=optimal parenting, (2) high care/high control=affectionate constraint, (3) high control/low care=affectionless control and (4) low care/low control=neglectful. Assignment to 'high' and 'low' categories is based on the following cut-off scores: mothers, 27 for care and 13.5 for protection; fathers, 24 for care and 12.5 for control (Parker et al. 1979). This parenting typology is widely used in the literature (e.g. Willinger et al. 2005) and was adopted in the present study.

Spielberger state–trait anxiety inventory

The Spielberger State–Trait Anxiety Inventory (STAI) (Spielberger et al. 1987) is a widely used self-report measure that indexes both state and trait anxiety. It has been used in both clinical and non-clinical populations (Spielberger et al. 1987) and has been validated for use with Australian childbearing women (Barnett and Parker 1986; Grant et al. 2008; Hart and McMahon 2006) . The *state* anxiety scale consists of 20 items that evaluate current feelings of tension, anxiety and nervousness. The *trait* anxiety scale consists of 20 items that assess anxiety levels in general. Women scoring above 40 on the STAI-Trait scale have been considered as highly anxious in prior Australian studies of childbearing women (Grant et al. 2008). The STAI demonstrated good internal consistency in the present study with Cronbach's alphas of 0.94 (state) and 0.96 (trait) for the antenatal assessment and 0.93 for postnatal state anxiety.

Edinburgh postnatal depression scale

The Edinburgh Postnatal Depression Scale (EPDS) (Cox et al. 1987) is a 10-item questionnaire that is widely used to screen for symptoms of depression in the postpartum period. It has also been validated for use during pregnancy (Murray and Cox 1990). Cases of at least probable minor depression in the antenatal and postnatal periods have been identified using EPDS cut-off scores ≥13 and ≥10, respectively (Matthey 2008). Cronbach's alpha indicated good reliability during both the prenatal (0.86) and postnatal (0.87) periods.

Mini-plus international neuropsychiatric interview

The Mini-plus International Neuropsychiatric Interview (MINI-Plus) (Sheehan et al. 1998) was administered by trained personnel to assess anxiety and depressive symptoms meeting the DSM-IV criteria. The MINI-Plus is reliable and valid and demonstrates good concordance with the Structured Clinical Interview for DSM diagnoses (Spitzer et al. 1990) and CIDI (World Health Organisation 1990) for ICD-10 diagnoses. Participants were assessed using the panic disorder, agoraphobia, social phobia, post-traumatic stress disorder, generalized anxiety disorder, mixed anxiety depressive disorder and minor and major depression components of the MINI-Plus. For the purpose of data analysis, bearing in mind the relatively small sample, the various anxiety modules were collapsed into one variable, 'anxiety'. Similarly, the modules of major and minor depression were collapsed into a single variable, 'depression'. When administered at postnatal follow-up, 'past episode' was defined to include the occurrence of the above disorders since the end of pregnancy. Although minor depression is not yet recognized as a formal diagnostic category (DSM-IV, Appendix B), it is associated with significant distress and impairment and, thus, was included in this study.

Parenting stress

The Parenting Stress Index—Short Form (PSI-SF) (Abidin 1995) is a 36-item self-report tool that assesses three domains related to parenting stress: the *Parental Distress* subscale indicates the level of distress a parent is experiencing in his or her role as a parent; the *Parent–Child Dysfunctional Interaction* subscale focuses on the parent's experience of interacting with the child as rewarding or not rewarding; the *Difficult Child* subscale measures parents' perceptions of their child's self-regulatory abilities, behaviours and manageability. Cronbach's alpha in the present study was 0.90 for the total scale; alpha coefficients ranged between 0.81 and 0.86 across the subscales.

Approach to data analysis

Preliminary analyses

Prior to hypothesis testing, preliminary analyses were carried out to test for potential covariates. One-way analysis of

variance (ANOVA) and chi-square tests indicated that there were no significant differences between bonding quadrants (mother or father) with respect to maternal demographic variables (age, education level and ethnicity) or infant characteristics (gestational age at birth, sex, birth weight and 5-min Apgar score), p values >0.10. Consequently, no covariates were included in subsequent analyses.

Hypothesis testing

One-way ANOVA were conducted to test the hypothesis that perceived lack of care and high protection/control (i.e. affectionless control) during childhood would be associated with higher symptoms of anxiety and depression during pregnancy and the postnatal period. Pairwise contrasts (adjusted for multiple comparisons) were used to compare the affectionless control quadrant with the other bonding quadrants. Analyses were conducted separately for mothers and fathers.

Results

Sample characteristics

Of the 149 women originally enrolled in the study during pregnancy, 104 (70 %) were available to take part in the postnatal follow-up. Various factors including obstetric complications, scheduling difficulties and failure to complete questionnaires resulted in complete data sets being available for 88 participants, 59 % of the original sample. Women retained in the study did not differ from those lost to the study on measures of prenatal anxiety diagnosis, depression symptoms, maternal demographic variables or infant characteristics (all p values >0.10). Maternal demographic variables are summarised in Table 1.

Table 1 Maternal demographics

Characteristic	Number	Percent	*M*	SD
Age (years)	88		31.82	4.28
Highest level of education				
Secondary school	14	15.9		
Tertiary	74	84.1		
Ethnicity				
Caucasian	81	92		
Asian	7	8		
Partner	80	90.9		
Number of children				
One	62	70.5		
Two or more	26	29.5		

Infants were 46 boys (52.3 %) and 42 girls (47.7 %). All were full-term (gestational age at birth, M=39.95 weeks, SD=1.11) and healthy (5-min Apgar, M=9.00, SD=0.74; birth weight, M=3.44 kg, SD=0.48). At follow-up, 52 infants (59.1 %) were being breastfed at least once per day.

Maternal depression and anxiety

Descriptive statistics for maternal self-reports of anxiety and depression are shown in Table 2. During pregnancy, 28 women (31.8 %) reported STAI-State and STAI-Trait anxiety scores >40; 8 (9.1 %) reported EPDS scores ≥13. Twenty-two women (25 %) met the criteria for at least one anxiety disorder during pregnancy. Of these, seven also reported either major (n=6) or minor (n=1) depression. At the 7-month postpartum follow-up, 28 women (31.8 %) reported STAI-State scores >40; 14 (15.9 %) reported EPDS scores ≥10. Six women (6.8 %) met the criteria for at least one anxiety disorder postnatally, another 6 (6.8 %) met the criteria for major depression and a further 11 (12.5 %) met the criteria for both anxiety and major depression in the 7-month interval since birth.

Parental bonding

Distributions across parental bonding quadrants are shown in Tables 3 (mother) and 4 (father). The data suggest that approximately half the sample reported optimal bonding with both their mother (52.3 %) and father (48.9 %), a result that has been reported elsewhere (e.g. Willinger et al. 2005). The majority of the remainder endorsed the contrasting quadrant of affectionless control (26.1 % mother, 25.0 % father).

Parental bonding and maternal depression and anxiety symptoms

The relationship between the PBI quadrants and maternal self-report measures of anxiety and depression are shown in Tables 3 (maternal bonding) and 4 (paternal bonding). One-way ANOVA indicated significant differences across PBI

Table 2 Maternal anxiety and depression symptoms

	M	SD
Pregnancy anxiety and depression		
STAI-State	35.84	11.46
STAI-Trait	37.35	12.65
EPDS	5.72	4.64
Postnatal depression and anxiety		
STAI-State	35.31	10.43
EPDS	5.41	4.43

Table 3 PBI bonding quadrants (mother)

Total (n=88)	Optimal parenting, n=46 (52.3 %)		Affectionate constraint, n=10 (11.4 %)		Affectionless control, n=23 (26.1 %)		Neglectful parenting, n=9 (10.2 %)	
	M	SD	*M*	SD	*M*	SD	*M*	SD
Pregnancy depression and anxiety								
Depression	3.78	3.50	6.50	2.72	8.61	5.27	7.33	5.55
State anxiety	31.48	9.28	34.40	10.48	43.61	11.70	39.89	11.88
Trait anxiety	32.26	10.48	34.50	8.67	46.70	12.69	42.67	12.41
Postnatal depression and anxiety								
Depression	3.65	3.01	6.10	5.04	7.91	5.27	7.22	4.18
State anxiety	31.52	8.13	31.70	7.32	42.35	10.85	40.67	12.38
Trait anxiety	32.22	8.75	33.30	7.27	42.52	10.91	41.56	12.53
Parenting stress								
Parental distress	23.28	6.95	26.00	9.62	30.61	8.89	28.44	7.65
Dysfunctional interaction	15.70	4.15	15.50	3.84	17.87	5.69	17.44	4.67
Difficult child	20.83	6.53	22.00	6.90	23.74	7.61	18.78	4.99
Total stress	59.80	14.23	63.50	18.06	72.22	18.88	64.67	13.34

quadrants (mother) for prenatal self-report measures of state anxiety [$F(3,84)=7.56$, $p<0.001$], trait anxiety [$F(3,84)=9.53$, $p<.001$] and depression [$F(3,84)=7.48$, $p<0.001$] and for postnatal self-report measures of state anxiety [$F(3,84)=8.42$, $p<0.001$] and depression [$F(3,84)=6.48$, $p<0.005$]. Pairwise contrasts revealed that, compared to women who reported optimal maternal parenting (high care/low control), women who experienced overprotection and low care from their mothers (affectionless control) reported significantly higher symptom scores on self-reported measures of prenatal and postnatal anxiety and depression, p values <0.01. No other comparisons were significant, p values >0.10.

Comparisons across PBI quadrants (father) indicated significant differences on measures of prenatal state [$F(3,84)=3.85$, $p<0.05$] and trait anxiety [$F(3,84)=4.06$, $p<0.05$] and postnatal state anxiety [$F(3,84)=3.34$, $p<0.05$]. Pairwise contrasts revealed that, compared to women who reported optimal paternal parenting, women in the affectionless control quadrant reported significantly higher scores on self-reported measures of prenatal and postnatal anxiety, p values <0.05. No other comparisons were significant, p values >0.10.

Parental bonding and maternal DSM-IV anxiety and depression

Chi-square analyses indicated that reported parenting experience (PBI maternal bonding quadrant) was associated with (1) prenatal anxiety disorder [χ^2 (3)=12.55, $p<0.01$] and (2) postnatal major depression [χ^2 (3)=10.81, $p<0.05$]. Odds ratios were calculated for the different quadrants. Compared to women with optimal parenting, women who reported the parenting style 'affectionless control' were six times more likely to be diagnosed with an anxiety disorder during pregnancy (OR=6.1, 95 % CI=2.17–30.11) and almost seven times more likely to be diagnosed with postnatal major depression (OR=6.8, 95 % CI=1.80–25.37). Associations between 1paternal caretaking history and prenatal and postnatal anxiety and depressive disorders were non-significant, p values >0.10.

Parental bonding and parenting stress

One-way ANOVA were conducted to test the hypothesis that perceived lack of care or overprotection (i.e. affectionless control) during childhood would be associated with increased parenting stress. The results indicated significant differences across bonding quadrants (mother) for the PSI Parental Distress subscale [$F(3,84)=4.74$, $p<0.005$] and for the PSI Total Stress score [$F(3,84)=3.11$, $p<0.05$]. Pairwise comparisons, adjusted for multiple comparisons, revealed that, compared to women who reported optimal maternal parenting (high care, low control), women who experienced affectionless control (high control and low care) reported significantly higher levels of parenting distress, p values <0.05. No other pairwise comparisons were significant, p values >0.10.

For paternal parenting, differences across quadrants were significant for scores on the PSI Parental Distress subscale only [$F(3,84)=3.15$, $p<.05$]; however, follow-up comparisons were not significant, p values >0.05.

Discussion

Consistent with previous research (Boyce et al. 1991; Matthey et al. 2000; McMahon et al. 2005), this study shows that

mothers' perceptions of adverse caretaking during childhood are associated with symptoms of depression and anxiety during the perinatal period. Results of this study indicate that pregnant women's perceptions of adverse caretaking during childhood ('affectionless control') were associated with vulnerability to mood disorders in the perinatal period and elevated depression and anxiety symptoms and more parenting stress when their child was 7 months old. Importantly, compared to women who reported perceptions of optimal caretaking during childhood, those who reported affectionless control were six times more likely to be diagnosed with an anxiety disorder in pregnancy and seven times more likely to be diagnosed with postnatal depression Table 4.

Findings are also consistent with a large body of research demonstrating that adverse early caretaking experiences are associated with vulnerability to depression in adulthood (Gladstone and Parker 2005). Although we did not measure attachment representations or attachment style, the data are in line with a central proposition of the attachment theory. This theory proposes that relatively stable defensive strategies for processing attachment-related thoughts and feelings may be acquired in response to unsupportive caretaking experiences and that these strategies may continue to compromise a woman's capacity to cope in times of stress, such as the transition to parenthood (Carlson et al. 2003).

The proposition that there are long-term sequelae of early caretaking quality is a central tenet of the attachment theory (Bowlby 1980). Sensitive responsive care during early childhood is believed to foster the development of positive representations of the self and also support the child's developing capacity to manage distressing feelings. In contrast, infants whose caregivers provide care that is unresponsive and/or harsh may develop a negative representation of the self and emotion regulation strategies that defensively exclude or fail to contain emotions that are potentially disturbing or overwhelming (Cassidy 1994). Subsequently, these variations in early regulatory capacity may provide the basis for differences in later strategies for coping with normative stresses and eliciting support from others (Carlson et al. 2003).

Consistent with previous reports (Enns et al. 2002; Kitamura et al. 1999; Manassis et al. 1999), the results of the current study suggest that the association between recalled mothering experiences and psychopathology may be stronger and more pervasive than the association between recalled fathering experience and psychopathology. This may reflect a 'traditional' family role delineation whereby the mother spends more time with her children, particularly in the early developmental years.

A novel finding was the significant association between perceived maternal affectionless control and current parenting stress. The fact that both paternal and maternal affectionless control quadrants on the PBI showed significant differences on the Parenting Distress subscale suggests that a mother's own experience of being parented may impact on her ability to personally adjust to the transition to motherhood (Willinger et al. 2005). The non-significant associations between affectionless control and the other subscales of the PSI (Dysfunctional Interaction, Difficult Child) were somewhat surprising, but parenting stress in these domains may also be influenced by child factors (e.g. temperament, unsettled behaviour) not assessed in this study.

Table 4 PBI bonding quadrants (father)

Total (n=88)	Optimal parenting, n=43 (48.9 %)		Affectionate constraint, n=8 (9.0 %)		Affectionless control, n=22 (25.0 %)		Neglectful parenting, n=15 (17.1 %)	
	M	SD	M	SD	M	SD	M	SD
Pregnancy depression and anxiety								
Depression	4.47	4.68	5.63	3.46	7.59	4.81	6.60	4.01
State anxiety	31.84	11.14	38.63	11.64	40.55	12.18	38.93	7.47
Trait anxiety	33.05	12.81	36.88	9.40	42.59	13.57	42.27	7.49
Postnatal depression and anxiety								
Depression	4.42	3.69	4.75	4.13	6.95	4.56	6.33	5.77
State anxiety	32.19	9.59	34.00	9.06	39.64	12.14	38.60	8.13
Trait anxiety	33.63	11.00	34.38	6.61	40.27	11.72	37.33	7.66
Parenting stress								
Parental distress	23.88	8.00	23.25	5.29	29.09	7.70	29.20	9.82
Dysfunctional interaction	15.95	3.90	15.75	4.10	17.00	4.97	17.27	6.42
Difficult child	21.09	6.64	21.00	7.56	21.41	5.37	23.13	8.94
Total stress	60.93	14.48	60.00	15.66	67.50	15.27	69.60	16.50

Limitations and strengths

There are several limitations to the present study. First, sample factors may limit generalisability. Due to our sampling strategy, this sample had a high prevalence of elevated anxiety symptoms and anxiety disorders in pregnancy. Consequently, the extent to which our findings would apply to women from more typical community samples is unclear. Further, our study sample overall had a high socio-economic status and generalisability to women of different socio-economic backgrounds is unknown. Given that our middle-class, well-educated sample would have been largely buffered from additional risk factors associated with psychosocial adversity (e.g. teenage parenthood, unemployment, financial strain, housing problems), it is likely that our results are conservative. Finally, our sample size was quite small (n=88), potentially limiting our capacity to detect significant effects, particularly when comparing different PBI quadrants and analysing the effects of specific sub-types of psychiatric diagnoses.

Second, our study is limited in terms of measures used. The PBI is a widely used, reliable and valid measure of perceived early caretaking, and although the low care/high control may index abusive relationships, the measure does not specifically ask about abuse (Buist 1998). While some scepticism about retrospective reporting is warranted, results from previous studies have shown that the measure is largely unaffected by concurrent depressed mood (Parker 1981) and has sufficient reliability and validity for the measure to be seriously considered at least a partial reflection of true parenting history (Kendler et al. 1997). Additionally, it is likely that it is the perception of parenting, rather than actual parenting behaviour, that holds the greatest risk for subsequent psychopathology (Wilhelm et al. 2005).

Much of the research on intergenerational transmission of parenting problems has assessed adults' current state of mind about attachment and/or their attachment style in adulthood. Inclusion of such measures in future studies would be advisable. Finally, while parenting stress was measured, no observations of parenting were included, so extrapolation from these findings to actual parenting behaviour can only be speculative.

Clinical implications and conclusions

This study suggests that assessing a woman's own parenting history is important in identifying and managing the risk of perinatal affective disorders and parenting stress. Using perinatal psychosocial assessment tools such as the ANRQ (Austin et al. 2011), which include items about experience of caregiving in childhood, are a first step in early identification of those who may benefit from such holistic interventions. A large body of research from an attachment theory framework indicates intergenerational transmission of parenting styles (Miller et al. 1997), and research in an Australian sample has shown that the effect of postnatal depression on the mother–child attachment relationship is moderated by the mother's mental representations of her caretaking history (McMahon et al. 2006). Taken together with the evidence that treatment of maternal symptoms of anxiety and depression alone will not necessarily help the parent–child relationship (Milgrom et al. 2004; Murray et al. 2002; Poobalan et al. 2007), more holistic interventions that provide both symptom relief and also address relationship difficulties are indicated.

One such approach with a growing evidence base is interpersonal psychotherapy (IPT) (Stuart and O'Hara 1995) which has an explicit focus on disruptions to key relationships and social supports associated with postnatal depression. Recent evidence from a randomised controlled trial showed that group IPT for postnatal depression reduced depressive symptomatology and improved interpersonal functioning as indicated by more positive reports of relationships with partner and social supports and more positive perceptions of the mother–infant relationship (Mulcahy et al. 2010). Further, these researchers subsequently reported that, at 2 years post-treatment, the women receiving IPT were less likely to report persistent depressive symptoms (Reay et al. 2012), but longer-term outcomes regarding the parent–child relationship were not reported. There is, as yet, limited evidence that IPT delivered in pregnancy can be effective in preventing postnatal depression; however, some promising results (Zlotnick et al. 2006) require further research.

Psychotherapeutic approaches drawn explicitly from an attachment theory framework also need to be evaluated with regard to their effectiveness in addressing intergenerational issues and preventing postnatal depression and promoting positive parent–child relationships. These approaches typically involve three therapeutic tasks: providing a corrective attachment experience through the therapeutic relationship whereby the therapist/intervener provides a secure base from which the parent can explore her own attachment-related cognitions and memories, promoting change in working models of attachment and, ultimately, enhancing parents' capacity for sensitive responsive parenting (Berlin et al. 2008). The first two of these objectives could be achieved in pregnancy, as the attachment theory (Bowlby 1988) suggests that the transition to parenthood may be a particularly opportune time for working models of attachment to be revised.

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Conflict of interest There are no conflicts of interest, actual or potential, related to the submitted manuscript.

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