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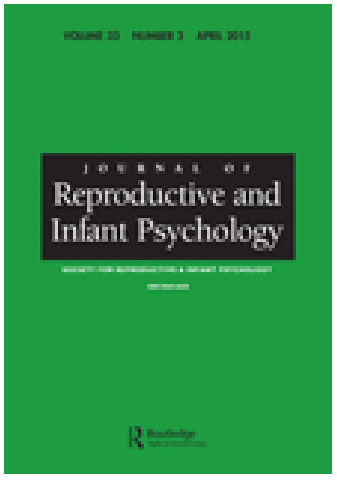

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Perinatal distress, an appraisal perspective

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Objective: The aim of this study was to identify the particular appraisals that shape maternal distress using the theoretical framework of Appraisal Theory of Emotions, which suggests that experienced emotions are triggered by the appraisal of specific situations. **Background:** Perinatal distress has been extensively studied. Symptoms range from mild to clinically significant. While major risk factors have been elucidated, cognitive components that may trigger distress need further clarification. **Method:** 122 women recruited during their third trimester of pregnancy completed measures of distress and appraisal during late pregnancy, within 7–10 days after delivery, and at 10–12 weeks postpartum. Mood scales included the Edinburgh Postnatal Depression Scale and the Depression, Anxiety and Stress Scale. Appraisal items addressed the experiences of pregnancy and motherhood. **Results:** Correlation and regression analyses showed a significant and stable association between symptoms of depression, anxiety and stress, and appraisals of low coping potential and future expectancy across the three assessment times. Low motivational congruence (incongruence) was associated with depression, anxiety, and stress during late pregnancy and the first days after childbirth, and with symptoms of depression at 10–12 weeks postpartum. **Conclusion:** In this sample of women experiencing low to moderate distress, findings suggest that the perceived ability to cope practically and emotionally with pregnancy and maternal-related issues, as well as pessimistic ideas about the future, form the core appraisal basis of perinatal distress. Implications for practice and intervention are discussed.

Keywords: pregnancy; childbirth; mothers; emotional

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Introduction

Maternal mood during pregnancy and the postnatal period has been studied extensively due to its significant impact on maternal and infant well-being. Although research is predominantly focused on clinically significant postnatal depression, it has been acknowledged that a large proportion of women experience milder symptoms of depression and that symptoms of anxiety and stress are also commonly experienced during the perinatal period (Brockington, Macdonald, & Wainscott, 2006; Matthey, Barnett, Howie, & Kavanagh, 2003; Miller, Pallant, & Negri, 2006; Phillips, Sharpe, Matthey, & Charles, 2009). Thus, it has been suggested that the term perinatal distress is more accurate to refer to the broader emotional experience (Rowe, Fisher, & Loh, 2008). Significant research has been conducted into the risk

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factors for the development of postnatal depression (Milgrom et al., 2008), the clinical presentation of its symptoms (Beck, 2006), as well as interventions to treat it (Sockol, Epperson, & Barber, 2011). Similarly, the prevalence (Brockington et al., 2006; Wenzel, Haugen, Jackson, & Brendle, 2005) and treatment (Wenzel & Stuart, 2011) of symptoms of perinatal anxiety has been also studied. However, very few studies have focused on the proximal processes that shape the emotional states involved in perinatal distress. These may provide important information about predisposing factors for both distress and more severe depression postnatally.

The Appraisal Theory of Emotions is among the most widely accepted and applied theoretical models for understanding the elicitation and differentiation of emotions. The central tenet of the Appraisal Theory of Emotions is that the outcome of how people appraise their circumstances lies at the base of how they respond to them emotionally, and research undertaken from this perspective is focused on identifying the cognitive components that underlie particular emotional experiences (Lazarus, 1998; Moors, 2009; Roseman, 1996; Scherer, Schorr, & Johnstone, 2001). According to this model, specific emotions result from the evaluation or appraisal of a situation in relation to one's own goals, concerns and well-being, along a number of core appraisal dimensions, such as motivational relevance, motivational congruence, coping potential, accountability, and future expectancy. A description of these appraisals is presented in Table 1.

While acknowledging that emotional experiences are dynamic and vary significantly between individuals, the Appraisal Theory of Emotions suggests that

Table 1. Appraisal dimensions.

Appraisal dimension	Core question	Definition
Motivational relevance	Is it important?	Refers to the significance of a situation in the pursuit of specific goals to which the individual is committed
Motivational congruence	Is it advantageous or disadvantageous?	Addresses the compatibility of a situation in the pursuit of specific goals to which the individual is committed
Accountability	Who or what is responsible for the circumstances?	Relates to the attribution of responsibility the individual makes in regard to a particular event. Distinctions are made between self-blame (i.e. Self Agency), the blaming of others (i.e. Other Agency) and the blaming of impersonal circumstances (i.e. Circumstances Agency)
Problem-focused coping potential	Can I cope with the situation?	Addresses the individual's perceived ability to modify the situation to make it coherent with his/her goals and plans through direct actions and thoughts
Emotion-focused coping potential	Can I cope with my emotions?	Relates to the individual's perceived capacity to adjust emotionally to the circumstances, it entails actions like reappraising the events in a positive way or changing the personal goals
Future expectancy	Will the circumstances remain as they currently are?	Describes the expectations the individual embraces regarding the future development of the event

Note: The content of the table has been taken and adapted from Smith & Lazarus (1993).

particular combinations of appraisals form patterns that underlie and result in specific emotions, such as anger or fear. Each such combination of appraisals generates a central meaning, or core relational theme, that shapes the emotional experience (Lazarus & Smith, 1988).

Within the context of perinatal distress, the most relevant emotions described by the Appraisal Theory of Emotions are sadness and fear, which can be related to symptoms of depression and anxiety, respectively. The appraisal patterns associated with sadness and fear are high Motivational Relevance and low Motivational Congruence (i.e. incongruence). When a situation is significant for the individual, but is inconsistent with his/her personal goals and desires (i.e. is not or does not contribute to what the individual wants), sadness and fear may be elicited. In the case of sadness, low Problem-focused coping potential (Problem-focused CP) and low Future Expectancy are also relevant, because the individual also believes (s)he does not have the sufficient ability or chance to act upon the situation to modify it according to his or her desires and thinks it is unlikely that the circumstances will change in a favourable way in the future (Smith & Lazarus, 1993).

Conversely, the emotional response of fear is associated with low Emotion-focused coping potential (Emotion-focused CP), which appears as a low perceived ability to adjust to the situation by modifying personal interpretations, beliefs and/or desires about the event. Thus, the emotional experience of fear has an essential character or core relational theme of perceived danger or threat. These appraisal patterns have been validated (Smith & Lazarus, 1993) and used in studies of appraisal and emotions within various contexts (Diener, Smith, & Fujita, 1995; Smits, De Boeck, Kuppens, & Van Mechelen, 2002).

The aim of this study is to explore the associations between maternal distress and appraisals by identifying the appraisals that are concurrently and prospectively associated with maternal distress during late pregnancy and the postnatal period in a group of healthy, low-risk women. The research questions are: (1) what is the relationship between appraisals and maternal distress; (2) is there a concurrent association between maternal distress and appraisals during the third trimester of pregnancy and the postpartum period; and (3) is there a prospective relationship between appraisals and maternal distress during the third trimester of pregnancy and the postpartum period?

Based on previous research of the Appraisal Theory of Emotions, it is hypothesised that the appraisal patterns that are associated with the emotions of sadness and fear will be related to the symptoms of maternal distress at each assessment time, and that they will contribute to maternal distress measured in subsequent assessment times. By identifying the proximal psychological underpinnings of perinatal distress, this study will complement the large research literature on more distant risk factors (such as poor social support). Also, insight into which appraisal processes are particularly involved in perinatal distress may help to inform the detection and treatment of women who experience emotional difficulties during or after pregnancy.

Materials and method

Approval to conduct this study was obtained from the Northern Hospital Ethics Committee, Melbourne, Australia.

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Participants

One hundred and twenty-two pregnant women with an average age of 29.7 years (SD = 4.5) were recruited from the antenatal clinic of a local health centre associated with the Northern Hospital in Melbourne, Australia, and from the general community. The following inclusion criteria were applied: (a) a minimum age of 18 years; (b) no major medical complication accompanying the pregnancy at time of recruitment; (c) no history of severe psychiatric conditions (e.g. psychotic disorders); (d) no use of any sleep medication; (e) not on nightshifts; and (e) English-speaking women. The midwives at the antenatal clinic helped to identify the women who could be eligible based on their personal knowledge of the women and the information on their medical records. These women were then approached and invited to participate by the first author. Women from the general community were recruited through advertisement and contacted by the first author to assess their eligibility and give them information about the study.

Most of the participants were married (89.3%) or in a stable relationship (98.2%) and only 2.5% (n = 3) were single. The sample included 66 (54.1%) first-time mothers and 56 (45.9%) multiparous mothers; they were from diverse cultural backgrounds, although the majority (58.2%) was born in Australia or New Zealand. Most of the participants were highly educated and had an undergraduate (52.5%) or postgraduate (27.1%) university degree. All the women participated in the study voluntarily after giving informed consent.

Design

A repeated measures design was used to assess the participants' symptoms of distress and appraisals during the third trimester of pregnancy (Time 1), within the first 7–10 days after childbirth (Time 2) and at 10–12 weeks postpartum (Time 3).

Procedure

Upon recruitment, during the third trimester of pregnancy (Time 1), participants were given a set of questionnaires that included a Demographic Questionnaire (DQ-1), the Edinburgh Postnatal Depression Scale (EPDS: Cox, Holden, & Sagovsky, 1987), the Depression, Anxiety and Stress Scale (DASS 21: Lovibond & Lovibond, 1995) and an Appraisal Scale. Participants recruited at the antenatal clinic were asked to complete the questionnaires while they waited for their antenatal consultations, whereas women recruited from the general community were sent the first set of questionnaires by mail with a prepaid envelope to return them to the researchers. For the second and third assessments all participants were sent a similar set of questionnaires by mail two weeks before the participants' due dates (Time 2) and 10 weeks after childbirth (Time 3). Women were asked to complete the questionnaires at the end of the first week after delivery and within 10–12 weeks postpartum at Time 2 and Time 3, respectively, and to return the forms to the researchers at their earliest convenience.

Measures

Maternal distress

The EPDS (Cox et al., 1987) is a 10-item self-report questionnaire developed for screening depressive symptoms during and after pregnancy. The authors have

reported high reliability (split half reliability = .88) and validity (Cronbach's alpha = .87) (Cox & Holden, 1994). In this study, a cut-off score of 13 was used to identify women who presented with high levels of distress. Cronbach's alpha values for the EPDS global score for the three assessment times were .82, .84, and .88.

The ‚DASS 21 (Lovibond & Lovibond, 1995), is a well-validated questionnaire that assesses current ('over the past week') depression, anxiety, and stress, using 21 self-report items. Each of the three scales is formed by seven items which range from 'did not apply to me at all' to 'applied to me very much, or most of the time' on a 0–3 Likert scale. Scale scores are calculated by summing the ratings of the seven items in each scale, with higher scores indicating more severe depression, anxiety, or stress. Cut-off scores suggested by the authors (Lovibond & Lovibond, 1995) were used to identify the participants who presented with symptoms of depression, anxiety, and stress.[1] The questionnaire was selected because by addressing three different types of symptoms, it accurately assesses different components of postpartum distress. Cronbach's alpha values for the depression subscale were .81, .88, and .88 at Time 1, Time 2, and Time 3, respectively. For the anxiety subscale the values were .70, .83, and .82. Finally, for the stress subscale, Cronbach's alpha values were .80, .84, and .89.

Appraisal

Appraisal scales are often tailored according to the focus and purpose of each particular study and are built up based on valid prototypical items (Roseman, 2001; Schorr, 2001; Smith & Lazarus, 1993). For the present study, 18 items were adapted from an appraisal measure developed by Smith and Lazarus (1993), that assesses specific appraisal components, namely Motivational Relevance, Motivational Congruence, Accountability, Problem-focused coping potential (Problem-focused CP), Emotion-focused coping potential (Emotion-focused CP), and Future Expectancy (see Table 1).

Each appraisal component is assessed with three items with five-point Likert scales. Scores for each appraisal component are calculated by adding the individual scores from the relevant items, with the exception of Accountability. This appraisal component has three items addressing Self Agency, Other Agency, and Circumstances Agency, which were used individually for the analyses. The original items were modified to address pregnancy for the third trimester assessment and the recently born child for the two postnatal assessments. Sample items include: is being pregnant consistent with what you want; to what extent do you consider yourself responsible for what happens or has happened in your life during your pregnancy; how certain are you that you would be able to influence things to make (or keep) your pregnancy experience the way you want it to be; and how consistent is your pregnancy experience with the way you wanted it to be?

The Appraisal measure from which the items were adapted has been reported to have high test–retest and internal reliabilities, with Cronbach's alpha values for the specific appraisal components ranging from .61 to .88, with the exception of Future Expectancy, which has been reported to have a low reliability (Cronbach's alpha = .32) (Bennett, Lowe, & Honey, 2003). In the present study, Cronbach's alpha values for Motivational Relevance, Motivational Congruence, and Accountability were acceptable and ranged from .61 to .67 across the three assessments. Cronbach's alpha values for Problem-focused CP were .87, .92, and .86. Emotion-focused CP

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and Future Expectancy had values than ranged consistently from .95 to .97 during the three assessment times.

Analyses

A series of repeated-measures ANOVA were used to explore the changes in appraisal and symptoms of distress across the three assessment times. Greenhouse–Geisser corrections were made where the assumption of sphericity was not met.

The relationship between appraisals and maternal distress was explored with two different models. In the first model, initial Pearson product–moment correlations were calculated to identify associations between appraisals and mood scales at each assessment time. Next, the appraisals that were significantly correlated with the individual mood scales were used as predictors in multiple regression analyses. In the cases where only one significant correlation was identified, multiple regression converted to a simple regression.

In the second model, hierarchical regression analysis was used to explore the prospective contribution of appraisals to maternal distress measured in subsequent assessment times. Single appraisals assessed at Time 1 were used as predictors of individual mood scales at Time 2 and Time 3, controlling for symptoms of distress at Time 1. A similar procedure was followed using appraisals at Time 2 to predict maternal distress at Time 3.

Statistical significance was defined as $p < .05$. However, due to the large number of analyses, alpha adjustment procedures were applied and the results of multiple and hierarchical regression analyses were tested against Bonferroni-corrected p-values ($p < .0125$). Data were analysed using the Statistical Package for Social Sciences (SPSS) version 20.

Results

A total of 122 participants completed the first assessment during the third trimester of pregnancy, 96 women provided data at Time 2 (i.e. within 7–10 days postpartum) and 101 completed the assessment at Time 3 (i.e. 10–12 weeks postpartum).

Maternal distress and appraisal characteristics

All the scores from the scales used to assess maternal distress corresponded to the normal range according to the standard scoring procedures. However, the pattern of change over the perinatal period differed for the symptoms of depression, anxiety, and stress. EPDS and $DASS_{stress}$ scores remained stable across the three assessment times. Symptoms of depression assessed by $DASS_{depression}$ remained stable from Time 1 to Time 2, but increased at 10–12 weeks postpartum as compared to Time 2. In contrast, symptoms of anxiety decreased from the third trimester of pregnancy (Time 1) to the first 7–10 days postpartum (Time 2) and remained low when measured at Time 3.

Appraisals remained relatively stable across the three assessment times;, changes were only observed in Motivational Congruence and Coping Potential. Motivational Congruence increased from Time 1 to Time 2; similarly, both Emotion-focused CP and Problem-focused CP at Time 2 and Time 3 were higher than at Time 1 (see Table 2).

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Table 2. Mean values and repeated-measures ANOVA for mood and appraisal variables at Times 1, 2 and 3.

	Time 1*M* (*SD*)	Time 2*M* (*SD*)	Pair-wise (T1–T2)	Time 3*M* (*SD*)	Pair-wise (T1–T3)	Pair-wise (T2–T3)	*F*	*df*
Mood								
EPDS	6.65 (4.36)	6.99 (4.11)	–	6.19 (4.58)	–	–	1.20	2,166
$DASS_{depression}$	3.88 (5.04)	2.94 (3.66)	–	4.58 (6.23)	–	#	4.20*	2,164
$DASS_{anxiety}$	4.50 (5.56)	2.55 (3.38)	##	2.64 (4.97)	##	–	7.45**	2,166
$DASS_{stress}$	8.60 (6.26)	8.64 (5.68)	–	8.55 (7.74)	–	–	.01	2,166
Appraisal								
Motivational Relevance	4.42 (.59)	4.53 (.54)	–	4.49 (.56)	–	–	1.19	2,160
Motivational Congruence	4.04 (.75)	4.34 (.65)	##	4.17 (.66)	–	–	7.38**	2,160
Self Agency	3.85 (1.34)	4.14 (1.01)	–	4.21 (1.07)	–	–	3.00	2,156
Other Agency	2.40 (1.23)	2.31 (1.20)	–	2.40 (1.15)	–	–	.25	2,154
Circumstances Agency.	3.15 (1.14)	3.00 (1.24)	–	2.95 (1.20)	–	–	.79	2,140
Problem-focused CP^	3.77 (.76)	4.05 (0.81)	#	4.11 (.63)	##	–	7.91**	2,141
Emotion-focused CP^	3.74 (.82)	3.97 (.81)	#	4.12 (.74)	##	–	9.30**	2,144
Future Expectancy	3.79 (.76)	3.90 (.67)	–	3.93 (.71)	–	–	2.00	2,160

Note: CP, Coping potential; ^, sphericity assumptions were not met; pair-wise significance: #, $p < .05$, ##, $p < .001$; ANOVA significance: * $p < .05$, ** $p < .001$.

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Table 3. Pearson correlation coefficients between mood scales and appraisal at Times 1, 2 and 3.

	Relevance	Congruence	Self Agency	Other Agency	Circ. Agency	Problem-focused CP	Emotion-focused CP	Future Expect.
Mood at Time 1								
EPDS-1	**–.29****	**–.43****	–.03	**.19****	.09	**–.31****	**–.52****	**–.37****
$DASS_{depression}$-1	**–.21****	**–.39****	.03	.03	.07	**–.35****	**–.46****	**–.39****
$DASS_{anxiety}$-1	**–.30****	**–.25****	.06	.13	.08	–.17	**–.39****	**–.34****
$DASS_{stress}$-1	–.17	**–.34****	.06	.02	.05	**–.30****	**–.43****	**–.40****
Mood at Time 2								
EPDS-2	–.12	**–.28****	.08	–.03	–.10	**–.26****	**–.29****	–.11
$DASS_{depression}$-2	.02	**–.25****	.02	.00	.02	**–.29****	**–.48****	–.20
$DASS_{anxiety}$-2	.05	**–.23****	–.02	.00	–.01	–.12	–.15	–.02
$DASS_{stress}$-2	–.01	**–.30****	.02	–.04	.09	**–.28****	**–.39****	–.18
Mood at Time 3								
EPDS-3	–.08	**–.27****	.02	–.07	.17	**–.32****	**–.50****	**–.31****
$DASS_{depression}$-3	–.07	**–.37****	–.05	–.08	.12	**–.42****	**–.56****	**–.34****
$DASS_{anxiety}$-3	.08	–.09	.04	–.11	.12	–.14	**–.21***	–.09
$DASS_{stress}$-3	.00	–.14	.18	–.01	.19	**–.33****	**–.50****	**–.39****

Note: CP, Coping potential; Circ. Agency, Circumstances Agency; Future Expect., Future Expectancy; * $p < .05$, ** $p < .001$. A negative correlation indicates an association between high distress and low levels of appraisal.

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Concurrent associations between appraisals and maternal distress

Table 3 presents Pearson product–moment correlations between appraisals and symptoms of distress. Low Emotion-focused CP and Problem-focused CP were consistently associated with high maternal distress measured by all the mood scales across the three assessment times, excepting $DASS_{anxiety}$, which was only associated with Emotion-focused CP at Time 1 and Time 3. Similarly, Low Motivational Congruence (i.e. incongruence) was related to higher scores on all the measures of distress at Time 1 and Time 2, but only to symptoms of depression at Time 3. Low (i.e. negative) Future Expectancy was associated with maternal distress only at Time 1 and Time 3. Surprisingly, low (as opposed to high) Motivational Relevance was correlated with symptoms of depression and anxiety at Time 1 according to EPDS and $DASS_{depression}$;, no other significant relationships were observed between this appraisal and maternal distress at Time 2 and Time 3. Similarly, there were no significant associations between Agency and maternal distress across the three assessment times, with the exception of Other Agency and EPDS-1.

Regression analyses revealed significant associations between appraisals and all the maternal distress variables across the three assessment times, with the exception of $DASS_{anxiety}$ at Time 2 and Time 3 (see Table 4). Emotion-focused CP made a significant contribution to all the measures of distress that were significantly associated with appraisals, with the exception of $DASS_{depression}$ at Time 1, EPDS at Time 2, and $DASS_{anxiety}$ at Time 2 and Time 3. Future Expectancy contributed to $DASS_{stress}$ at Time 3.

Prospective contribution of appraisals to maternal distress

Hierarchical regression analyses identified Future Expectancy-1 as a significant contributor to symptoms of depression and anxiety at Time 2 assessed by EPDS-2 and

Table 4. Summary of multiple regression analyses using appraisals and mood at Times 1, 2 and 3.

				Significant contributors		
Mood variables	R^2	F	df	Variable	t	Beta
Mood at Time 1						
EPDS-1	.34	8.92*	6,106	Emotion-focused CP-1	–3.09*	–.33
$DASS_{depression}$-1	.29	8.95*	5,108			
$DASS_{anxiety}$-1	.20	6.69*	4,110	Emotion-focused CP-1	2.65*	.29
$DASS_{stress}$-1	.28	10.42*	4,110	Emotion-focused CP-1	–2.74*	.29
Mood at Time 2						
EPDS-2	.13	4.06*	3,83			
$DASS_{depression}$-2	.23	8.63*	3,85	Emotion-focused CP-2	–3.27*	.48
$DASS_{anxiety}$-2^^	.05	4.77	1,89			
$DASS_{stress}$-2	.19	6.68*	3,86	Emotion-focused CP-2	–2.59*	.39
Mood at Time 3						
EPDS-3	.26	8.34*	4,93	Emotion-focused CP-3	–3.95*	.46
$DASS_{depression}$-3	.35	12.60*	4,92	Emotion-focused CP-3	–3.98*	.44
$DASS_{anxiety}$-3^^	.05	4.8	1,94			
$DASS_{stress}$-3	.32	13.91*	3,90	Emotion-focused CP-3	–3.26*	.44
				Future Expectancy	–2.55*	.31

Note: CP, Coping potential; *$p < .0125$; ^^ indicates linear regression.

Table 5. Summary of hierarchical regression analyses predicting mood at Time 2 and Time 3 using single appraisals at Time 1 and Time 2.

				Significant contributors		
Mood variables	R^2	F	df	Variable	t	Beta
Mood at Time 2			(Predictors = Appraisals-1)			
EPDS-2	.28	16.51	2,87	Future Expectancy-1	2.47*	.24
$DASS_{depression}$-2	–	–	–	–	–	–
$DASS_{anxiety}$-2	.22	12.34	2,88	Future Expectancy-1	2.28*	.23
$DASS_{stress}$-2	–	–	–	–	–	–
Mood at Time 3			(Predictors = Appraisals-1)			
EPDS-3	.21	12.62	1,93	Emotion-focused CP-1	–2.08*	–.24
$DASS_{depression}$-3	.36	23.07	2,94	Self ag-1	–3.29*	–.27
	.37	27.61	2,94	Problem-focused CP-1	–3.61*	–.31
	.31	21.30	2,93	Emotion-focused CP-1	–2.06*	–.20
$DASS_{anxiety}$-3	–	–	–	–	–	–
$DASS_{stress}$-3	–	–	–	–	–	–
Mood at Time 3			(Predictors = Appraisals -2)			
EPDS-3	.26	14.59	2,82	Emotion-focused CP-2	–2.59*	–.26
$DASS_{depression}$-3	.25	13.37	2,81	Emotion-focused CP-2	–2.46*	–.27
$DASS_{anxiety}$-3	–	–	–	–	–	–
$DASS_{stress}$-3	.35	21.61	2,82	Future Expectancy-2	–2.05*	–.19

Note: CP, Coping potential; Self ag, Self Agency; *$p < .0125$, – indicates non-significant result.

$DASS_{anxiety}$–2, respectively. With regard to maternal distress at 10–12 weeks postpartum (Time 3), EPDS-3 was significantly associated with Emotion-focused CP measured at Time 1 and Time 2; whereas $DASS_{depression}$-3 was related to Emotion-focused CP, Problem-focused CP, and Self Agency assessed at Time 1, and to Emotion-focused CP at Time 2. Finally, Future Expectancy-2 was significantly associated with stress measured by $DASS_{stress}$-3 (see Table 5).

Discussion

Changes in maternal distress and appraisals from late pregnancy to the postpartum period

The women involved in this study consistently reported low levels of depression, anxiety and stress symptoms across the three assessment times. This stable pattern of low distress observed during late pregnancy and the postpartum period is consistent with current literature that highlights antenatal mood as a predictor of postnatal mood (Austin, Reilly, Milgrom, & Barnett, 2010; Grant, McMahon, & Austin, 2008; Heron, O'Connor, Evans, Golding, & Glover, 2004; Milgrom et al., 2008). It may also be possible that some of the psychosocial characteristics of the participants, such as being in a partner relationship and having a high level of education, may have acted as protective factors against the development of distress.

Interestingly, symptoms of anxiety decreased from the third trimester of gestation to the immediate postpartum period and remained low until three months after childbirth. Similar findings have been previously reported by Heron and colleagues

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(2004), who observed a mean decrease in anxiety from pregnancy to 8 weeks and 8 months postpartum in a large community sample of 8,323 women. The authors argue that antenatal worries and concerns about the development of pregnancy and the health of the baby could be resolved upon the birth of a healthy baby, thus providing an explanation for the anxiety reduction. In the present study, the perceived ability to cope practically and emotionally with motherhood-related issues increased and remained stable from late pregnancy to the postpartum period, thus suggesting that feelings of self-efficacy in the maternal role experienced by women after childbirth are an enduring characteristic. Given the sample as a whole were in the normative range, for some women enduring self-efficacy may have had a positive impact on anxiety; conversely, a decrease in anxiety may have supported the development of higher self-efficacy.

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Relationship between appraisals and maternal distress

The findings of this study highlight Motivational Congruence, Future Expectancy and Coping potential as the most significant appraisals contributing to maternal distress. There was a consistent association between low Motivational Congruence (i.e. incongruence) and higher symptoms of depression, anxiety, and stress during the third trimester of pregnancy and the first 7–10 days after delivery, at 10–12 weeks postpartum this association remained significant for depressed mood only. These findings suggest that discrepancies between the actual pregnancy and motherhood experience and a woman's goals and plans place new mothers at a higher risk to experience distress, especially during pregnancy and the early postpartum period, as has been indicated by previous quantitative (Pancer, Pratt, Hunsberger, & Gallant, 2000) and qualitative studies (Staneva & Wittkowski, 2012).

Negative beliefs and expectations about the future revealed by low Future Expectancy were also extensively associated with symptoms of depressed mood, anxiety, and stress. Similar to the findings involving Motivational Congruence, this association was stronger during late pregnancy and the first 7–10 days after childbirth, whereas it remained significant for stress only at 10–12 weeks postpartum. Also, negative thoughts about the future during pregnancy were related to symptoms of depression and anxiety in the immediate postpartum period. This finding is consistent with the cognitive model of depression, which describes a negative perception of the future as a core feature of this disorder (Beck & Alford, 2009). In this study, Future Expectancy was measured for a specific period of time and is therefore believed to account for transitory cognitions. However, in some women it may also reflect a relatively stable cognitive style. It is likely that women with lowest Future Expectancy were most at risk of developing a more serious clinical depression in the future, and this may be a helpful assessment tool.

The stable association between the perceived ability to cope practically and emotionally with pregnancy and motherhood and symptoms of depression, anxiety, and stress highlights coping potential as an essential and stable proximal correlate of maternal distress during pregnancy and the postpartum period. Perceived coping potential was more strongly associated with maternal distress at 10–12 weeks postpartum than in the first days after childbirth, as opposed to Motivational Congruence and Future Expectancy. This may indicate that in the first days after

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delivery, new mothers have an increased awareness of their perceived incongruence between their plans and their actual experience of motherhood, as well of the negative ideas about the future they may have. As the postnatal period progresses, their attention may shift from these issues to their perceived ability to cope, which becomes more salient and relevant to their experience of distress.

With regard to problem-focused coping potential, earlier studies have linked the perception of reduced control over external threats and negative emotions to high levels of anxiety (Barlow & Parsons, 2002) and depression (Joiner & Wagner, 1995), with special attention being paid to the individual's expectations of his/her ability to manage aversive events (Rapee, Craske, Brown, & Barlow, 1996). In the perinatal period, women may feel unsure about their ability to deal with pregnancy-related changes and the demands associated with infant care, which may often be beyond their control. Also, depending on the circumstances and the availability of social support, for both first-time and multiparous mothers adjusting to the practical changes and demands of the perinatal period and developing or modifying the skills and attitudes to perform the maternal role may be challenging tasks.

The significant association between Emotion-focused CP and maternal distress during late pregnancy and at 10–12 weeks postpartum, as well as the association between this appraisal at Time 1 and Time 2 and later symptoms of depression, emphasise the relationship between distress and the low perceived ability to regulate and modify negative emotions; which might be subjectively experienced as feelings of being overwhelmed. Low perceived Emotion-focused CP can be associated with inadequate emotional regulation, which in recent reviews has been pictured as characteristic of both depressive (Joormann & D'Avanzato, 2010) and anxiety disorders (Cisler, Olatunji, Feldner, & Forsyth, 2010) in the non-pregnant population. The results of this study suggest that low emotional regulation also operates in the development and maintenance of perinatal distress. Moreover, the stable pattern of associations between Emotion-focused CP and maternal distress during the perinatal period may indicate a relatively stable configuration or habitual appraisal style that places women at an increased risk for developing symptoms of distress.

The patterns of appraisals associated with perinatal distress were not completely equivalent to the patterns of sadness and fear described by Smith and Lazarus (1993). Contrary to the hypotheses of this study, low Motivational Relevance (i.e. irrelevance) was related to high distress during late pregnancy and not significantly associated with maternal distress in the postnatal period. This may be due to a restriction in this appraisal's variance, because all the participants reported being pregnant and mothering their infants as highly relevant. The other appraisals that shape the patterns for the emotions of sadness and fear that were hypothesised to underlie perinatal distress were only partially observed in the correlations between appraisals and maternal distress variables. This discrepancy may be explained by the fact that the appraisal patterns of emotions have been studied in relation to single emotions (i.e. fear, sadness, anger, etc.) rather than in relation to mood symptoms or disorders. Thus, it may possible that anxiety and depressed mood as measured in this study are the result of a combination of different emotions, among which sadness and fear are probably the most salient – but not the only ones – associated with the symptoms of depression and anxiety.

Limitations

The results of this study are limited by the characteristics of the sample, which included predominantly healthy, tertiary-educated women, and cannot be generalised to other populations. The sample as a whole did not experience high levels of distress. Also, although the findings provide relevant information about the appraisal components of perinatal distress, the coefficients obtained from both correlation and regression analyses are in the small and medium range. This suggests that other variables that were not assessed in this study influence maternal distress. Future studies could address these limitations by replicating this study in more diverse samples that include clinically depressed and/or anxious women, and participants from more diverse socioeconomic and education backgrounds; and by controlling for other variables such as parity, infant temperament, and levels of support.

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Implications

Notwithstanding these limitations, the above-presented findings contribute to the understanding of the cognitive mechanisms involved in perinatal distress, which affects a large proportion of women. Findings could inform preventive interventions to curb the development of disruptive emotional responding during and after pregnancy. For instance, the relevance of coping potential suggests that interventions including strategies to enhance self-efficacy and to promote positive emotional regulation could be beneficial for pregnant women and new mothers who are distressed. Also, the significant contribution to distress made by the incongruence between the actual pregnancy and motherhood experience and a woman's plans points to the need to promote women's awareness of the potential impact of pregnancy and motherhood on several aspects of their lives, so plans and expectations of realistic nature are developed. The development of realistic expectations could be complemented with the development of concrete strategies to cope with the expected challenges, such as increase social support, to facilitate the adjustment to motherhood and the reorganization of the family system, in order to reduce maternal distress.

Finally, the contribution of negative expectations about the future to maternal distress suggests that this appraisal may be useful to identify women who may be distressed or at risk of developing mental health symptoms; this may be an interesting scale for further research into risk of developing more serious depressive conditions.

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Note

1. The severity ratings for the DASS used in this study were as follows. Depression: 0–4 (normal), 5–6 (mild), 7–10 (moderate), 11–13 (severe), and 14+ (extremely severe); Anxiety: 0–3 (normal), 4–5 (mild), 6–7 (moderate), 8–9 (severe), and 10+ (extremely severe); Stress: 0–7 (normal), 8–9 (mild), 10–12 (moderate), 13–16 (severe) and 17+ (extremely severe).

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