Factors related to depression during pregnancy: are there gender differences?

V Escribà-Agüir,[1,2,3,4] M C Gonzalez-Galarzo,[2,4] C Barona-Vilar,[1] L Artazcoz[2,3,5,6]

[1] Woman and Infant Health Department, Conselleria de Sanitat, Generalitat Valenciana, Valencia, Spain; [2] Gender and Health Network (RIGS), Valencia, Spain; [3] Epidemiology and Public Health CIBER (CIBERESP), Spain; [4] Valencian School for Health Studies (EVES), Generalitat Valenciana, Valencia, Spain; [5] Agència de Salut Pública, Barcelona, Spain; [6] Universitat Pompeu Fabra, Barcelona, Spain

Correspondence to: Dr V Escribà-Agüir, Servei de Salut Infantil i de la Dona, Direcció General de Salut Pública, C/Micer Mascó, 31, 46011 Valencia, Spain; escriba_vic@gva.es

Accepted 1 August 2007

ABSTRACT

Objective: To determine gender differences between women and their partners in the effect of psychosocial and personal factors on depression during the third trimester of pregnancy.

Method: A cross-sectional survey was carried out among 687 women and their partners (n = 669) attending the prenatal programme of Valencia province (Spain). Data collection was carried out by means of a self-reported questionnaire. The outcome variable was depression during the third trimester of pregnancy measured by the Edinburgh Postnatal Depression Scale. Predictor variables were psychosocial (marital dissatisfaction, confidant and affective social support) and personal (previous history of depression, partner depression and unplanned pregnancy) variables. The adjusted odds ratios (aOR) and their 95% confidence intervals were calculated by fitting a logistic regression model.

Results: The prevalence of pregnancy depression was higher among women (10.3%) than men (6.5%). In both sexes, the probability of depression during pregnancy was higher in those with marital dissatisfaction (aOR 3.05, 95% CI 1.59 to 5.82 for women and 3.14, 95% CI 1.24 to 7.99 for men) and among those whose with a previous history of depression (aOR 2.18, 95% CI 1.22 to 3.89 for women and 5.22, 95% CI 2.05 to 13.34 for men). Unplanned pregnancy did not increase the risk of pregnancy depression either in women or men. Gender differences were found on the impact of social support and partner's depression. Whereas among men low affective social support and partner depression were associated with a higher probability of reporting depression, none of these variables were related to women's depression.

Conclusion: Most predictor factors of depression during pregnancy are similar for both sexes but a gender-different impact of social support and partner depression on pregnancy depression was appreciated. Health professionals should be aware of potentially vulnerable groups for early diagnosis of pregnancy depression and to provide effective interventions.

The transition to parenthood starts during pregnancy when parents begin to form emotional bonds with the unborn child and continues for a certain time after childbirth. Therefore, significant emotional and interpersonal adjustments are necessary.[1] Consequently, parents are more vulnerable to psychiatric illnesses during the postnatal period. Evidence suggests that postpartum depression can be part of a continuum, with the onset of illness during pregnancy.[2] Nevertheless, previous research has focused on examining the risk factors of depression mainly during the postpartum period. Moreover, more attention has been paid to the problem of postpartum depression among women, but paternal postpartum depression is a relatively unrecognised phenomenon.[3]

The prevalence of postpartum depression in mothers has been consistently reported as between 8% and 28%,[4 5] and for fathers it varies from 5% to 13%,[6 7] in the early postpartum period. The prevalence of maternal depression during pregnancy was between 13% and 19%.[6 8 9] Nevertheless, these rates vary across studies depending upon factors such as the time of assessment, the definition of depression, the instrument used to measure depression and the culture of the populations studied.[4 5]

The scientific literature has highlighted the influence of personal and psychosocial risk factors (past history of depression, stressful life events, low social support) during pregnancy[9] and postpartum depression.[3 6 10–12] Findings concerning the effect of marital problems[10 11 13–16] and unplanned pregnancy on postpartum depression are, however, not consistent.[10 17 18] A limited number of studies have addressed the study of fathers' depression risk factors during pregnancy and the postnatal period, but a recent meta-analysis showed that maternal depression was a strong predictor of postpartum depression among fathers.[3]

The aim of this study was to determine gender differences between women and their partners in the effect of psychosocial (marital dissatisfaction, social support) and personal factors (previous history of depression, partner's depression and unplanned pregnancy) on depression during the third trimester of pregnancy.

METHOD

Study design and setting

A cross-sectional survey was carried out over a sample of 769 women selected by means of consecutive sampling from January to December 2005. A total of 769 women in their third trimester of pregnancy (between 28 and 31 weeks of pregnancy) and their partners attending the prenatal programme in 10 primary care centres of Valencia province (Spain) were recruited into the study. Response rates were 89.34% for women and 87% for men, obtaining a sample of 687 and 669 subjects, respectively. We did not find significant differences in the distribution of age, educational level, native country, and occupational social class between respondent and non-respondent women, although the percentage of women without employment was slightly higher among non-respondent women than among respondent women (34.6% versus 20.8%).

Data collection

Data collection was carried out by means of a self-reported questionnaire handed out by the midwife to women and their partners. Women completed the questionnaire at the primary care centre and fathers at home. All participants gave written informed consent.

Measurements

Outcome variable

Depression during the third trimester of pregnancy was assessed by means of the validated Spanish version of the Edinburgh Postnatal Depression Scale, using a threshold score of 12/13.[19] This validation has not determined the cut-off score in fathers, so as Matthey *et al*[20] suggested, a two-point lower cut-off score ($\geqslant$11) was used.

Predictor variables

Psychosocial variables

Two variables were analysed (marital satisfaction and social support). Marital satisfaction was measured using the ENRICH Marital Satisfaction Scale (10 items)[21] adapted to the Spanish cultural context (translation and back-translation). Each item was rated on a four-point scale. The total score was categorised into high (>24 for women, >25 for men) and low ($\leqslant$24 for women, $\leqslant$25 for men) from the values obtained in a one-dimensional cluster analysis.

The Duke-UNC functional social support questionnaire (11 items) validated for Spain[22 23] was used to measure functional elements of social support. This 11-item questionnaire has two subscales: affective social support (four items) to measure positive affective expressions and confidant social support (seven items), including such social functions as a confidant relationship. Each item was rated on a five-category Likert format. Both subscales were dichotomised into high and low, taking 15 percentile points as the cutpoint.

Personal variables

Previous history of depression, partner's pregnancy depression and unplanned pregnancy were included.

Adjusting variables

Some previous studies have shown a relationship between postpartum depression and several personal, socio-professional (negative life events, age, employment, couple's occupational social class, parity, native country, weekly hours devoted to domestic chores)[10 12 24–29] and obstetric variables (hyperemesis gravidarum, vaginal bleeding, pre-eclampsia).[10 30 31]

The presence or absence of negative life events during the past 12 months was measured from five questions (serious illness or death of a close family member, serious illness or death of a close friend, separation or divorce, partner's loss of job, and serious economic problems), considering that one presented unfavourable life events if at least one of the events mentioned above was present. Couples' occupational social class was assigned according to the occupation of the woman or her partner (whichever was higher) and was coded with a widely used Spanish adaptation of the British classification.[32]

Statistical analysis

After a descriptive analysis of the sample, logistic regression models separated by sex and adjusted for personal, socio-professional and obstetric factors were fitted in order to estimate the associations between predictor variables and depression during the third trimester of pregnancy. Adjusted odds ratios (OR) and 95% confidence intervals (CI) were the measures of association obtained after fitting these models. Analyses were conducted using Stata 8 software (Stata Corp, College Station, Texas, USA).

RESULTS

Description of the sample

The distribution of depression during the third trimester of pregnancy, psychosocial, personal and obstetric characteristics of the sample are shown in table 1. The prevalence of depression during pregnancy was higher among women (10.3%) than among men (6.5%). Among men whose partners were experiencing pregnancy depression, the prevalence of pregnancy depression was 14.5% and conversely 23.3% of mothers experienced depression during pregnancy when their partners did. The percentage of couples in which at least one parent experienced depression during pregnancy was 15.1%. The prevalence of psychosocial factors and of personal factors was similar for both sexes, but the prevalence of a previous history of depression was lower among men (9.8% versus 21.4%). Concerning socio-professional factors, percentages were also similar except for age and domestic chores. Fathers were older and spent less time doing housework.

Multivariate results

Low marital satisfaction increased the probability of depression during pregnancy in women and men. Among men low affective social support was associated with depression during pregnancy, OR 3.92 (95% CI 1.61 to 9.53). Previous depression increased the probability of pregnancy depression among fathers and mothers. Among fathers, partner's pregnancy depression increased the risk of pregnancy depression, OR 2.89 (95% CI 1.14 to 7.31). The same trend appeared for mothers but the association was not statistically significant and the magnitude of the effect was much lower. Unplanned pregnancy did not increase the risk of depression during pregnancy either in men or women (table 2).

DISCUSSION

To our knowledge, this is one of the largest studies of depression during pregnancy that includes both mothers and fathers among a non-selected population. In addition, we have included the most potentially possible psychosocial and personal risk factors highlighted by the scientific literature. This manuscript presents both similarities and differences between mothers and fathers in the effect of psychosocial (marital satisfaction, social support) and personal factors (previous history of depression, partner's depression during the third trimester of pregnancy and unplanned pregnancy) on depression during the third trimester of pregnancy, measured by the Edinburgh Postnatal Depression Scale, among a sample of mothers and their partners from Valencia (Spain). The study has produced two main findings: (1) the prevalence of depression during pregnancy was higher among women and (2) although most psychosocial and personal factors associated with depression during pregnancy were similar for both sexes, low affective social support and partner's depression were only related to men's depression. Marital dissatisfaction and a previous history of depression were predictors of pregnancy depression in both mothers and fathers. Unplanned pregnancy did not increase the risk of depression during pregnancy either in men or women. We found a differential effect, however, of social support and partner's

Table 1 Depression during pregnancy, psychosocial, personal and obstetric characteristics of the sample

	Mothers	Fathers
	n (%)	n (%)
Depression during pregnancy*		
No	615 (89.7)	621 (93.5)
Yes	71 (10.3)	43 (6.5)
Psychosocial factors		
Marital satisfaction		
High	407 (59.7)	372 (57.8)
Low	275 (40.3)	272 (42.2)
Affective social support		
High	541 (79.0)	523 (79.2)
Low	144 (21.0)	137 (20.8)
Confidant social support		
High	568 (83.2)	550 (83.6)
Low	115 (16.8)	108 (16.4)
Personal factors		
Previous history of depression		
No	540 (78.6)	598 (90.2)
Yes	147 (21.4)	65 (9.8)
Unplanned pregnancy		
No	612 (89.3)	601 (90.5)
Yes	73 (10.7)	63 (9.5)
Negative life events		
No	480 (69.9)	401 (60.5)
Yes	207 (30.1)	262 (39.5)
Obstetric factors		
Hyperemesis gravidarum		
No	529 (77.0)	–
Yes	158 (23.0)	–
Vaginal bleeding		
No	593 (86.3)	–
Yes	94 (13.7)	–
Pre-eclampsia		
No	679 (98.8)	–
Yes	8 (1.2)	–
Socio-professional factors		
Age, years		
Less than 30	286 (41.6)	154 (23.0)
30–34	300 (43.7)	314 (46.9)
More than 34	101 (14.7)	201 (30.0)
Parity		
Primiparae	496 (72.2)	477 (71.4)
Multiparae	191 (27.8)	192 (28.7)
Couples's occupational social class		
Manual workers	306 (44.6)	296 (44.3)
Non-manual workers	380 (55.4)	372 (55.7)
Employment†		
No	143 (52.0)	26 (3.9)
Yes	544 (48.0)	643 (96.1)
Native country		
Not Spain	74 (10.8)	74 (11.1)
Spain	613 (89.2)	595 (88.9)
Domestic chores, weekly hours		
Up to 30	524 (76.3)	632 (96.3)
More than 30	163 (23.7)	24 (3.7)

*Cut-off value was ⩾13 for mothers and ⩾11 for fathers.
†To have paid work during pregnancy in mothers and in fathers at the moment of data collection.

depression on pregnancy depression between men and women. Whereas low affective social support and partner's depression had a negative impact on pregnancy depression among fathers, none of these variables were related to women's depression.

The prevalence of depression during the third trimester of pregnancy among mothers and fathers was similar to that obtained by other authors who have used the same cut-off score and scale of measure.[1 8 33 34] As in other studies, the prevalence of self-reported depression during the third trimester of pregnancy was lower in fathers than in mothers.[1 4 6 33] This is also consistent with the generally higher prevalence of depression among women, pregnant or not.[35 36] Theories for these gender

Table 2 Multivariate odds ratio and 95% CI for the association between postpartum depression and psychosocial and personal factors among mothers and fathers

	Mothers		Fathers	
	OR (CI 95%)	p Value	OR (CI 95%)	p Value
Marital satisfaction				
High	1		1	
Low	3.05 (1.59 to 5.82)	0.001	3.14 (1.24 to 7.99)	0.016
Affective social support				
High	1		1	
Low	1.27 (0.63 to 2.56)	0.512	3.92 (1.61 to 9.53)	0.003
Confidant social support				
High	1		1	
Low	1.86 (0.89 to 3.87)	0.096	0.92 (0.36 to 2.38)	0.863
Previous history of depression				
No	1		1	
Yes	2.18 (1.22 to 3.89)	0.008	5.22 (2.05 to 13.34)	0.001
Partner's pregnancy depression				
No	1		1	
Yes	1.76 (0.75 to 4.13)	0.195	2.89 (1.14 to 7.31)	0.025
Unplanned pregnancy				
No	1		1	
Yes	0.87 (0.37 to 2.05)	0.753	2.04 (0.76 to 5.43)	0.156

Odds ratio (OR) adjusted by personal, socio-professional (negative life events, age, employment, occupational social class, parity, native country, weekly hours devoted to domestic chores) in mothers and in fathers and also by obstetric factors (hyperemesis gravidarum, vaginal bleeding, pre-eclampsia) only in mothers.

differences include a real difference in the experience of depression, under-reporting of depression symptoms by men, either because of a poorer recall of these symptoms by men, or men expressing disturbed effect through different symptoms than those assessed on diagnostic interviews or self-report measures.[4]

Consistent with previously reported findings, a strong association was identified between poor marital relationships and depression during pregnancy in both sexes[10 11 37–39] and the magnitude of effect was similar.

Affective social support was associated with pregnancy depression in men, whereas social support was not associated with depression among women. Other authors[6 10–12 40] found similar results, although they usually used a global social support scale.

It has often been reported that the most reliable predictor of prenatal and postnatal depression in mothers[6 10 11 37] and in fathers is a previous history of depression[6] and our findings are consistent with this.

Consistently with other authors, we found that maternal pregnancy depression was a strong predictor of pregnancy depression in men.[3 7 39 41] Interestingly, we found the same trend in mothers, but the association was not statistically significant.

As reported by Schmiege and Russo[17] our results do not support the theory that unplanned pregnancy increases pregnancy depression in mothers and their partners. It is possible that under present conditions of legal access to abortion, there is no credible evidence that choosing to terminate an unplanned pregnancy puts fathers at greater risk of subsequent depression.[17]

It is important to point out some possible limitations of this study. The cross-sectional nature of data leaves inferences about the causal direction of the effect of psychosocial and personal factors on depression during pregnancy. It is not known whether the factors associated with pregnancy depression occurred before or after the depressive period. Gender-different patterns in predictor variables still deserve further attention. So far, attention has been paid to women's depression during and, primarily, after pregnancy. The impact of women's depression on their partner's mental health should, however, be analysed, as well as the role of affective social support as being protective of men's depression during pregnancy.

Implications for practice and research

Depression during pregnancy and the puerperium is a serious mental health problem for women and its consequences have serious implications for the welfare of the family and the psychological development of the child.[11] Louma *et al*[42] in a

What is already known on this subject

- The scientific literature has highlighted the influence of personal and psychosocial risk factors (past history of depression, stressful life events, low social support) on prenatal and above all on postnatal depression among women
- Findings concerning the effect of marital problems and unplanned pregnancy on prenatal and postnatal depression are not consistent among women and men
- A limited number of studies have addressed fathers' depression risk factors during pregnancy and the postnatal period

What this paper adds

We found a differential effect of social support and partner's depression on pregnancy depression between men and women. Whereas low affective social support and partner's depression had a negative impact on pregnancy depression among men, none of these variables were related to women's depression. Therefore, further research should be carried out, combining quantitative and qualitative methods, to explain these possible gender differences.

longitudinal study found that maternal depressive symptoms at any time, especially antenatally, were a risk factor for the child's wellbeing and the recurrence of maternal depressive symptoms. Also recurrence and antenatal depression were associated with the least favourable child outcome. As a result of serious consequences, doctors and midwives should be aware of potentially vulnerable groups (women experiencing marital problems, women with a previous history of depression, those who have low social support) for an early diagnosis of pregnancy depression and to provide effective interventions (treatment, to provide services targeting social support).

Our results strongly support the theory that psychosocial (marital satisfaction, social support) and personal (previous depression, partner's pregnancy depression) factors were strong predictors of pregnancy depression in both mothers and fathers. A gender-different impact of social support and partner depression on pregnancy depression was, however, appreciated. Therefore, further research should be carried out, combining quantitative and qualitative methods, to explain these possible gender differences.

Funding: The study was partly financed by four research grants: three from "Fondo de Investigaciones Sanitarias" (Ministry of Health) (PI050443), Gender and Health Network (G03/42) and Epidemiology and Public Health Centres Network (C03/09) and two from "Conselleria de Sanitat, Generalitat Valenciana" (PI-031/2004 and PI-59/2005).

Competing interests: None declared.

REFERENCES

1. **Perren S,** von Wyl A, Bürgin D, *et al*. Depressive symptoms and psychosocial stress across the transition to parenthood: associations with parental psychopathology and child difficulty. *J Psychosom Obstet Gynaecol* 2005;**26**:173–83.
2. **Ryan D,** Milis L, Misri N. Depression during pregnancy. *Can Fam Physician* 2005;**51**:1087–93.
3. **Goodman JH.** Paternal postpartum depression, its relationship to maternal postpartum depression, and implications for family health. *J Adv Nurs* 2004;**45**:26–35.
4. **Matthey S,** Barnett B, Ungerer J, *et al*. Paternal and maternal depressed mood during the transition to parenthood. *J Affect Disord* 2000;**60**:75–85.
5. **Halbreich U,** Karkum S. Cross-cultural and social diversity of prevalence of postpartum depression and depressive symptoms. *J Affect Disord* 2006;**91**:97–111.
6. **Areias M,** Kumar RC, Barros H, *et al*. Correlates of postnatal depression in mothers and fathers. *Br J Psychiatry* 1996;**169**:36–41.
7. **Ballard C,** Davis R, Cullen P, *et al*. Prevalence of postnatal psychiatric morbidity in mothers and fathers. *Br J Psychiatry* 1994;**164**:782–8.
8. **Evans J,** Heron J, Francomb H, *et al*. Cohort study of depressed mood during pregnancy and after childbirth. *BMJ* 2001;**323**:257–60.
9. **Rubertsson C,** Waldenström U, Wickberg B, *et al*. Depressive mood in early pregnancy and postpartum: prevalence and women at risk in a national Swedish sample. *J Reprod Infant Psychol* 2005;**23**:155–66.
10. **Robertson E,** Grace S, Wallington T, *et al*. Antenatal risk factors for postpartum depression: a synthesis of recent literature. *Gen Hosp Psychiatry* 2004;**26**:289–95.
11. **O'Hara MW,** Swain AM. Rates and risk of postpartum depression—a meta-analysis. *Int Rev Psychiatry* 1996;**8**:37–54.
12. **Nielsen FD,** Videbech P, Hedegaard M, *et al*. Postpartum depression: identification of women at risk. *Br J Obstet Gynaecol* 2000;**107**:1210–17.
13. **McMahon C,** Barnett B, Kowalenko N, *et al*. Psychological factors associated with persistent postnatal depression: past and current relationships, defence styles and the mediating role of insecure attachment style. *J Affect Disord* 2005;**84**:15–24.
14. **O'Hara MW.** Social support, life events, and depression during pregnancy and the puerperium. *Arch Gen Psychiatry* 1986;**43**:569–73.
15. **Eberhard-Grand M,** Eskild A, Tambs K, *et al*. Depression in postpartum and non-postpartum women: prevalence and risk factors. *Acta Psychiatr Scand* 2002;**106**:426–33.
16. **Bernazzani O,** Saucier JF, David H, *et al*. Psychosocial predictors of depressive symptomatology level in postpartum women. *J Affect Disord* 1997;**46**:39–49.
17. **Schmiege S,** Russo NF. Depression and unwanted first pregnancy: longitudinal cohort study. *BMJ* 2005;**331**:1303.
18. **Warner R,** Appleby L, Whitton A, *et al*. Demographic and obstetric risk factors for postnatal psychiatric morbidity. *Br J Psychiatry* 1996;**168**:608–11.
19. **Garcia Esteve L,** Ascaso Terrén C, Ojuel J, *et al*. Validation of the Edinburgh Postnatal Depression Scale (EPDS) in Spanish mothers. *J Affect Disord* 2003;**75**:71–6.
20. **Matthey S,** Barnett B, Kavanagh DJ, *et al*. Validation of the Edinburgh Postnatal Depression Scale for men, and comparison of item endorsement with their partners. *J Affect Disord* 2001;**64**:175–84.
21. **Fowers BJ,** Olson DH. ENRICH Marital Satisfaction Scale: a brief and clinical tool. *J Fam Psychol* 1993;**7**:176–85.
22. **Bellón Saameño J,** Delgado Sánchez A, de Dios Luna del Castillo J, *et al*. Validez y fiabilidad del cuestionario de apoyo social funcional Duke-UNC-11. *Aten Primaria* 1996;**18**:153–63.
23. **Broadhead W,** Gehlbach SH, De Gruy F, *et al*. The Duke-UNC Functional Social Support Questionnaire. Measurement of social support in family medicine patients. *Med Care* 1988;**26**:709–23.
24. **Rich-Edwards JW,** Kleinman K, Abrams A, *et al*. Sociodemographic predictors of antenatal and postpartum depressive symptoms among women in a medical group practice. *J Epidemiol Community Health* 2006;**60**:221–7.
25. **Tammentie T,** Tarkka MT, Astedt-Kurki P, *et al*. Sociodemographic factors of families related to postnatal depressive symptoms of mothers. *Int J Nurs Pract* 2002;**8**:240–6.
26. **Haas JS,** Jackson RA, Fuentes-Afflick E, *et al*. Changes in the health status of women during and after pregnancy. *J Gen Intern Med* 2004;**20**:45–51.
27. **Bolton H,** Hughes PM, Turton P, *et al*. Incidence and demographic correlates of depressive symptoms during pregnancy in an inner London population. *J Psychosom Obstet Gynaecol* 1998;**19**:202–9.
28. **Brockington I.** Diagnosis and management of post-partum disorders: a review. *World Psychiatry* 2004;**3**:89–95.
29. **Artazcoz L,** Borell C, Benach J. Gender inequalities in health among workers: the relation with family demands. *J Epidemiol Community Health* 2001;**55**:639–47.
30. **Josefsson A,** Angelsiöö L, Berg G, *et al*. Obstetric, somatic, and demographic risk factors for postpartum depressive symptoms. *Obstet Gynecol* 2002;**99**:223–8.
31. **Verdoux H,** Sutter AL, Glatigny-Dallay E, *et al*. Obstetrical complications and the development of pospartum depressive symptoms: a prospective survey of the MATQUID cohort. *Acta Psychiatr Scand* 2002;**106**:212–19.
32. **Domingo A,** Marcos J. Propuesta de un indicador de la "clase social" basado en la ocupación. *Gac Sanit* 1989;**3**:320–6.
33. **Ramchandani P,** Stein A, Jonathan E, *et al*. Paternal depression in the postnatal period and child development: a prospective population study. *Lancet* 2005;**365**:2201–5.
34. **Bennett HA,** Einarson A, Taddio A, *et al*. Prevalence of depression during pregnancy: systematic review. *Obstet Gynecol* 2004;**103**:698–709.
35. **Piccinelli M,** Wilkinson GS. Gender differences in depression. *Br J Psychiatry* 2000;**177**:486–92.
36. **Macintyre S,** Hunt K, Sweeting H. Gender differences in health. Are things really as simple as they seem? *Soc Sci Med* 1996;**42**:617–24.
37. **Eberhard-Grand M,** Tambs K, Opjordsmoen S, *et al*. Depression during pregnancy and after delivery: a repeated measurement study. *J Psychosom Obstet Gynaecol* 2004;**25**:15–21.
38. **Boyce PM,** Hickey AR. Psychosocial risk factors to major depression after childbirth. *Soc Psychiatry Psychiatr Epidemiol* 2005;**40**:605–12.
39. **Deater-Deckard K,** Pickering K, Dunn J, *et al*. Family structure and depressive symptoms in men predicting and following the birth of a child. *Am J Psychiatry* 1998;**155**:818–23.
40. **Seguin L,** Potvin L, St-Denis M, *et al*. Depressive symptoms in the late postpartum among low socioeconomic status women. *Birth* 1999;**26**:157–63.
41. **Bielawska-Batorowicz E,** Kassakowska-Petrycka K. Depressive mood in men after the birth of their offspring in relation to a partner's depression, social support, father's personality and prenatal expectations. *J Reprod Infant Psychol* 2006;**24**:21–9.
42. **Luoma I,** Tamminen T, Kaukonem P, *et al*. Longitudinal study of maternal depression symptoms and child well-being. *J Am Acad Child Adolesc Psychiatry* 2001;**40**:1367–74.