REVIEW ARTICLE

Recognizing and Treating Peripartum Depression

Bettina Hübner-Liebermann, Helmut Hausner, Markus Wittmann

SUMMARY

Background: In this article, we review current data on the prevalence of, risk factors for, and treatment of peripartum depression.

Method: Pertinent publications were retrieved by searches in Medline and the Cochrane Library using the key words "peri/pre/post", "partum/partal/natal", "maternal/motherhood/pregnancy", and "depression/affective disorder".

Results: Depression is the most common peripartal disease: The prevalence of depressive disorders is 18.4% during pregnancy and 19.2% in the puerperium. Prepartum depression is associated with preterm birth, low birth weight, and an abnormal fetal heart rate. In the long run, children of depressed mothers have been found to have impaired cognitive and emotional abilities. Risk factors for peripartal depression include prior depression, poor social support, poor quality of intimate relationship, and negative live events. Peripartum depression can be treated effectively with psychotherapy or drug therapy. Current data support the use of antidepressants during pregnancy and breastfeeding. In many places, pregnancy counseling centers offer low-threshold psychosocial assistance. Nonetheless, no more than 20% of the affected women are identified, even though rapid screening would be possible with instruments such as the Edinburgh Postnatal Depression Scale (EPDS) and the two Whooley questions.

Conclusion: Peripartum depression is both common and treatable. Screening for depression should become a routine part of both prepartum care by gynecologists and postpartum care by midwives. This will only be possible, however, with expanded availability of ambulatory and inpatient psychotherapy and psychiatric care for the affected women and their children.

► Cite this as:
Hübner-Liebermann B, Hausner H, Wittmann M: Recognizing and treating peripartum depression. Dtsch Arztebl Int 2012; 109(24): 419–24.
DOI: 10.3238/arztebl.2012.0419

Department of Psychiatry and Psychotherapy University Hospital of Regensburg: Dr. rer. medic. Hübner-Liebermann

Department of Psychiatry and Psychotherapy, Cham, Oberpfalz District: Dr. med. Hausner

District Hospital Mainkofen, Deggendorf: Dr. med. Wittmann

Symptoms of depression are found in 18.4% of all pregnant women (95% confidence interval [CI]: 14.3 to 23.3) and 19.2% of all mothers during the first 3 months post partum (95% CI: 10.7 to 31.9).

Severe depression requiring treatment (major depression) with an overall prevalence similar to that in the general female population afflicts (1)

- 12.7% of women during pregnancy (95% CI: 7.1 to 20.4)
- 7.1% of mothers post partum (95% CI: 4.1 to 11.7).

In Great Britain the rate of suicide in the context of depressive disease among pregnant women and mothers within 6 months after giving birth is 0.27 per 100 000 (2). Only 20% to 40% of depressed women seek professional advice (e1, e2).

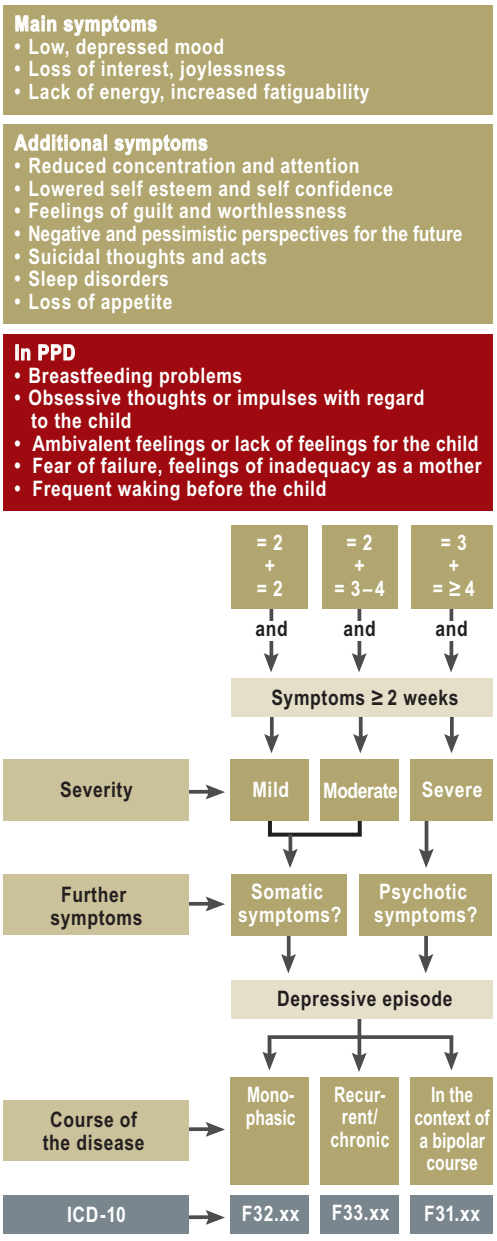
Depressive diseases are not only a leading cause of illness in women of child-bearing age worldwide (e3), they are the most frequent psychiatric affliction before and after birth. The consequences are serious and are not limited to the women themselves.

This article reviews recent studies on the prevalence, etiology, risk factors, and treatment of peripartum depression, and provides addresses for further information. Relevant publications up to December 2011 were identified by searching on Medline (search terms "peri/pre/post," "partum/partal/natal", "maternal/motherhood/pregnancy," and "depression/affective disorder"), in the Cochrane Library, and in German library catalogs online. Cited publications were also analyzed.

Peripartum depression: consequences for mother and child

Antenatal depression is associated with an elevated risk of premature birth (relative risk [RR] = 1.13), lower birth weight (RR = 1.18), and delayed intrauterine growth (RR = 1.03) (3). The possible causes include dysregulation of the maternal–fetal hypothalamic–pituitary–adrenal axis and a disordered intrauterine milieu owing to fluctuations in arterial blood flow (4). In their review, Kinsella and Monk (4) report lower variability in heart rate in the fetuses of stressed pregnant women. The fetuses of women with depression display a higher baseline heart rate, prolonged reaction time and pulse recovery, and increased motor activity. The affected women themselves show inadequate weight gain, less frequent attendance for prenatal examinations, and increased substance abuse (e4). Furthermore, Kozhimannil et al. (e5) found a higher frequency of depressive

FIGURE



Diagnostic algorithm for unipolar depression according to the German S3 guideline, expanded to include the characteristics of postpartum depression (PPD). Modified from (8) Härter M, Klesse C, Bermejo I, Schneider F, Berger M: Unipolar Depression: Diagnostic and Therapeutic Recommendations From the Current S3/National Clinical Practice Guideline. Dtsch Arztebl Int 2010; 107(40): 700–8

symptoms in women with (gestational) diabetes: this group had a 1.85-fold risk of peripartum depression, corresponding to an increase of almost 7% in absolute risk.

The behavior of depressed mothers of babies aged up to 6 months is characterized by reduced verbal and visual communication. The children more frequently display sleep and breastfeeding problems, avoidance behavior (aversion of gaze, turning the body away), decreased affect regulation, feeding disturbances, and failure to thrive (5). In the long term, the children of mothers with peripartum depression show insecure-avoidant attachment, and reduced cognitive, emotional, verbal, and social skills can be observed right up to puberty (6). Pawlby et al. (7) found that 16-year-olds are at a fourfold risk of themselves developing an affective disease.

Symptoms

Neither DSM-IV nor ICD-10 has a specific classification for peripartum depression. It is coded as F32.xx or F33.xx (8), and the time of occurrence can be specified under O99.3 *(Figure)*. Postpartum depression must be distinguished from the "baby blues" that afflicts 50% to 80% of new mothers (e6) and from the rarely occurring postpartum psychosis (PP), which is found in 0.1% to 0.2% of cases and usually requires immediate (inpatient) treatment because of the danger for both mother and child (e7). PP is characterized by delusions, audible thoughts, thought deprivation, hearing voices, and other hallucinations, usually within the first 2 weeks after giving birth. However, so-called negative symptoms such as conspicuous apathy or blunted or inappropriate affect may also occur. Nosologically, PP seems often to be a manifestation of bipolar disorder: 25% to 50% of new mothers with a history of bipolar illness suffer from PP (e7).

Depressive symptoms in the peripartum period are often strongly influenced by concern about the child and the demands of motherhood. The women suffer from fear of failure and feelings of inadequacy. They experience themselves as "bad mothers" who can't even manage to meet the needs of their child. They often report that the child is "difficult and demanding." Avoidance behavior on the part of the child and any existing problems with breastfeeding are interpreted as confirmation of their own failure, reinforcing the vicious circle and their ever-increasing exhaustion. Because of the personal and societal expectations of undiluted joy, the taboo against depression is even greater than at other times. The women are afraid to express their negative feelings towards their child and their perceived failure as mothers.

The affected women are particularly troubled by obsessive thoughts or impulses to harm the child. In the study by Chandra et al. (e8), 60.7% of severely depressed women, compared with 27.6% of those with psychoses or bipolar disorder, reported infanticidal thoughts; corresponding behavior was shown primarily by delusional patients. Hornstein et al. (9), however, are of the opinion that the risk of children being harmed by depressed mothers is underestimated. Infanticide is carried out from altruistic motives or because of fear of separation from the child in the context of extended suicide or in the presence of concurrent maternal attachment disorder. Infants in the first year of life are at the highest risk of infanticide (e9).

Overall, suicide and attempted suicide during pregnancy and lactation are rare (10)—the extensive network of support, the closer contact with the healthcare system, and concern for the (unborn) child seem to exert protective effects. Nevertheless, women with

psychiatric illness are particularly at risk of suicide in the postpartum period: Appleby et al. (11) found a 72-fold suicide risk during the child's first year of life among women who received postpartum inpatient psychiatric treatment. A conspicuous feature is the high rate of so-called "hard", more frequently lethal forms of suicide attempt, e.g., hanging and jumping from a great height, which are otherwise not usually adopted by women (2, 10).

What are the predisposing factors?

Beck's meta-analysis identified 13 significant predictors for postpartum depression, among them 10 with at least moderate effect strength *(Table)* (12). The remaining three factors, marital status, socioeconomic status, and unplanned/unwanted pregnancy, displayed low effect strength. Overall, the risk of postpartum depression seems to be increased in the presence of psychopathological problems, whether in the past or during pregnancy, or lack of support from the woman's partner or her wider social environment. A study by Ludermir et al. underlines the benefit of an intact relationship with the partner (13). They found that after adjustment for the above-mentioned risk factors, including antenatal psychiatric illness, mental abuse by the partner increased the likelihood of postpartum depression 1.6-fold, raising the absolute risk by 6%. Boyce and Hickey discuss the role played by the lack of resilience, which if present could moderate both the perceived support from the woman's partner and the perceived stress from the child (e10).

Moreover, Bloch et al. found an association between postpartum depression and hormone-induced mood disturbances such as premenstrual dysphoric disorder (PMDD) or mood swings while taking oral contraceptives (e11). They assumed that a subgroup of women with postpartum depression is characterized by elevated vulnerability to hormonal changes, with particular regard to estrogen and progesterone. Furthermore, a recent study by Skrundz et al. showed a correlation between low plasma oxytocin concentration in the second trimester and suspicion of postpartum depression on the Edinburgh Postnatal Depression Scale two weeks after delivery (e12).

The risk factors for depressive illness in pregnancy have not been studied for long, but on the basis of the data published so far they differ hardly at all from the known risk factors for postpartum depression. The review by Lancaster et al. identified eight risk factors with moderate to high effect strength at least on bivariate analysis *(Table)* (14). Routine daily stress, socioeconomic status, unemployment, abuse of illegal substances, and obstetric history had no effect.

Psychosocial and psychotherapeutic prevention

Dennis and Creedy conducted a review of psychological and psychosocial measures designed to prevent postpartum depression and came to the conclusion that these measures are unpromising (15): the women in the intervention and control groups had the same risk (RR = 0.81) of becoming depressed after giving birth. The risk was reduced in mothers who received intensive support from a midwife after delivery (RR = 0.68). In general, the successful interventions were those that specifically targeted high-risk women (RR = 0.67), started post partum (RR = 0.76), and were carried out on an individual basis (RR = 0.76).

Milgrom et al. have designed a nine-unit workbook for use by mothers and fathers from around 26 weeks of gestation to 6 weeks post partum (16). The parents follow the workbook without external guidance, with the exception of a weekly telephone conversation with a psychologist (16). The focus is on reducing risk factors, increasing the parents' competence and problem-solving skills, and facilitating treatment for existing symptoms. Preliminary RCT results show significantly lower levels of depression and anxiety in the intervention group, with moderate effect strengths.

Treatment of peripartum depression

Treatment for depression in the peripartum period is also based on psychoeducation, inclusion of relatives, psychopharmaceutical treatment, and psychotherapy. As might be expected, pregnant women and new mothers who want to breastfeed prefer psychotherapeutic interventions (e13, e14).

Despite the urgent need for studies on the effects of psychotherapeutic and psychosocial interventions in the antenatal period, up to 2007 only one published study had satisfied the requirements of a Cochrane review (17): Interpersonal psychotherapy (IPT) achieved

TABLE

Risk factors for peripartum depression in descending order of effect strength (mean effect strength at least r ≥ 0.3 in meta-analyses)

Antenatal depression [from 14]	Postpartum depression [from 12]
Prenatal anxiety*1	Prenatal depressive disease*2
Stressful negative life events*1	Lack of self-esteem*2
Lack of support from partner*1	Stress of childcare*2
Life events overall*2	Prenatal anxiety*2
History of depressive disease*2	Stressful life events*2
Lack of social support*2	Lack of social support*2
Unwanted pregnancy*2	Quality of relationship with partner*2
Quality of relationship with partner*2	History of depressive disease*2
	Temperament of child*2
	Baby blues*2

*1 r ≥ 0.5; *2 r ≥ 0.3

BOX

Antidepressive psychopharmacotherapy during pregnancy and lactation (after 20–22, e20, e22)

- **Pregnancy**
  - Selective serotonin reuptake inhibitors (SSRI): sertraline recommended as first-line treatment if breastfeeding is desired, otherwise also citalopram (maximum daily dose 40 mg); avoid paroxetine, fetal echocardiography recommended if already being taken
  - Tricyclic antidepressants (TCA): amitriptyline, nortriptyline, and imipramine have lowest known risk (but danger of overdosing and TCA more difficult to manage than SSRI)
  - Lithium: teratogenicity in first trimester discussed, increased probability of premature birth, high birth weight, and toxic syndromes in mother and child (floppy infant syndrome)
  - In general: avoid discontinuing or changing regular medications (cave: valproate)
- **Lactation**
  - In principle, breastfeeding is compatible with antidepressant medication
  - Usually only low or undetectable plasma concentrations in infants (exceptions: fluoxetine, citalopram, venlafaxine, and escitalopram)
  - Side effects in infants reported mainly for fluoxetine and citalopram
  - Caution in premature, low body weight, or ill infants (reduced metabolic capacity)
  - Determining drug concentrations in infants is generally unnecessary, but often sets the mother's mind at rest
  - No delay recommended between intake and breastfeeding
  - Lithium: breastfeeding possible in individual cases (caution if infant threatened by dehydration)
  - In general: try to avoid insufficiently documented substances such as fluvoxamine, venlafaxine, duloxetine, bupropion, mirtazapine, and reboxetine

risk reduction (RR = 0.46), but the sample was small (38 women).

In the postpartum period, all evaluated psychotherapeutic and psychosocial interventions, such as peer support, supportive therapy, cognitive behavioral therapy, IPT, and psychodynamic therapy, were significantly more effective than standard aftercare—at least for the first year post partum (18). IPT, as adapted for postpartum depression (e15), concentrates for example on the woman's changing role and on the demands and expectations associated with the role of mother, as well as on interpersonal, familial conflicts. After delivery, however, interventions in the mother's home and telephone- and internet-based support are much more practicable—also for reasons of time flexibility, respect for privacy, low degree of stigma, lack of socioeconomic barriers, and universal availability (18, 19).

Lengthy separation of mother and child should generally be avoided. Some psychiatric hospitals offer special mother-and-child units for inpatient care, but the supply has been estimated to meet no more than one-fifth of the demand (e16). An effective 6-week program for the inpatient treatment of mothers with psychiatric illness accompanied by their young children (up to 2 years old) has been designed by Hornstein et al. (e17). This program integrates a wide variety of therapeutic approaches and features interactional support of the mother–child relationship. Evaluation of the long-term outcome remains to be carried out.

Depending on the severity of the mother's illness, low-threshold support measures to reinforce the parent–child relationship can be contemplated, e.g., baby massage or PEKiP programs, which promote early family formation through play and motor and sensory stimulation in a group setting (e18). Furthermore, one should always consider domestic help or childcare (covered by health insurance) to relieve the strain on the mother.

Pharmacotherapy during pregnancy and lactation

There is a lack of randomized trials on psychopharmacotherapy during pregnancy and lactation and those that have been published are marred by methodological limitations. Nevertheless, the data suffice for evaluation of the older tricyclic antidepressants (TCA) and the frequently prescribed selective serotonin reuptake inhibitors (SSRI) such as fluoxetine, paroxetine, sertraline, and citalopram *(Box)* (20, e19). All of these substances permeate the placenta or are detectable in breast milk and can lead to central nervous, gastrointestinal, and respiratory adjustment disorders in newborn children (e20). With regard to pregnancy, the embryo is particularly susceptible to toxins in the first trimester. Substances with low metabolism, high protein-binding capacity, and low interaction potential should generally be preferred (21).

Up-to-date treatment recommendations in German can be found at www.embryotox.de, a site maintained by the Pharmacovigilance Center for Embryonal Toxicology at the Charité in Berlin in cooperation with the Department of Gynecological Psychosomatics at Bonn University Hospital. Personal advice can also be obtained from the Institute for Reproductive Toxicology in Ravensburg (www.reprotox.de). The German-language book "*Psychopharmakotherapie in Schwangerschaft und Stillzeit*" by Rohde and Schaefer (e21) is a comprehensive pharmacological reference with case studies.

Psychopharmacotherapy should generally be started with a single agent at the lowest possible dose. Treatment should be preceded by painstaking analysis of the benefits and risks, and the mother's wishes with regard to breastfeeding should be respected. The mother should not be left to bear the main burden of decision, especially since her judgment will often be impaired by her illness. It is particularly likely that breastfeeding will have to be discontinued if dosages are high or multiple medications are prescribed.

Other options for prophylaxis and treatment

In the review by Chabrol and Callahan (23), progestogen, omega-3 fatty acids, and thyroxine showed no significant preventive effects when taken during pregnancy. One trial, however, found a preventive effect of daily calcium intake. To date there is no evidence that antenatal depression can be effectively treated by massage or acupuncture (e23).

Also post partum there is no evidence for significant effects of treatment with estrogen or thyroxine or the use of omega-3 fatty acids (23). There are early positive reports of the effect of light therapy, albeit in small study populations (21, e24).

Screening—or how does treatment reach the patient?

Although pregnancy and early motherhood are characterized by regular contact with the healthcare system (24), only 18% of pregnant women with a psychiatric illness receive a corresponding diagnosis (e25). Johanson et al. (e26) found that 12% of depressed pregnant woman and 26% of depressed new mothers were correctly identified. Marcus et al. (e27) found depressive symptoms in 20% of the pregnant women attending a gynecologist's office, and only 13.8% of them were receiving treatment.

According to a web-based education program, both gynecologists and pediatricians are inadequately trained in the recognition of depression (e28) and are not viewed by new mothers as suitable persons to approach with psychiatric problems (e29). In the USA and Australia, this deficiency is being addressed by routine screening of pregnant women with the Edinburgh Postnatal Depression Scale (EPDS), a ten-question self-report questionnaire. A German version of the EDPS with information on the quality criteria can be found at www.marce-gesellschaft.de/materialien.html (e30). In Great Britain, consistent with the general recommendations of the German National Clinical Practice Guideline (S3) for Unipolar Depression (25), use of the two Whooley questions (e31) is recommended at the first prenatal consultation and again 4 to 6 weeks post partum (e32):

- During the past month, have you often been bothered by feeling down, depressed, or hopeless?
- During the past month, have you often been bothered by little interest or pleasure in doing things?

If the answer to both questions is "Yes," clinical investigation of the formal diagnostic criteria is required (25).

Ideally, every pregnant woman attending a gynecologist's office should be examined with regard to her psychiatric status or at least given a self-screening questionnaire, so that she can be referred to her family doctor or an appropriate specialist. Psychiatric outpatient departments can generally provide an appointment at short notice and usually also offer psychotherapeutic services. Low-threshold, usually rapid psychosocial support is readily available up to the child's third year of life via information centers and pregnancy counseling centers. In Germany, help can often be provided by the local representatives of the German Alliance against Depression (*Deutsche Bündnis gegen Depression*; www.buendnis-depression.de). Further information in German can be found on the homepage of the self-help group Schatten und Licht e.V. (www.schatten-und-licht.de).

Conflict of interest statement

Dr. Hübner-Liebermann declares that no conflict of interest exists.

Dr Hausner has received reimbursement of costs for attending a congress or training courses from Astra Zeneca, Servier, Janssen-Cilag, GlaxoSmithKline, and Pfizer.

Dr. Wittmann has received consultancy fees from Bristol Myers Squibb; reimbursement of costs for congress participation and accommodation and fees for the preparation of scientific training courses from AstraZeneca, Servier, Wyeth, Lilly, Janssen-Cilag, GlaxoSmithKline, Pfizer, EISEI, and Lundbeck; and fees for performing commissioned clinical studies from Servier.

Manuscript received on 20 May 2011, revised version accepted on 19 March 2012.

Translated from the original German by David Roseveare.

REFERENCES

1. Gavin NI, Gaynes BN, Lohr KN, Meltzer-Brody S, Gartlehner G, Swinson T: Perinatal depression: A systematic review of prevalence and incidence. Obstet Gynecol 2005; 106: 1071–83.
2. Oates M, Cantwell R: Chapter 11 – Deaths from psychiatric causes. In: Lewis G (ed.): The confidential enquiry into maternal and child health (CEMACH). Saving mothers' life – 2006–2008. London: CEMACH 2011: 132–42.
3. Grote NK, Bridge JA, Gavin AR, Melville JL, Iyengar S, Katon WJ: A meta-analysis of depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction. Arch Gen Psychiatry 2010; 67: 1012–24.
4. Kinsella MT, Monk C: Impact of maternal stress, depression und anxiety on fetal neurobehavioral development. Clin Obstet Gynecol 2009; 52: 425–40.
5. Field T: Postpartum depression effects on early interactions, parenting, and safety practices. Infant Behav Develop 2010; 33: 1–6.

KEY MESSAGES

- Around 19% of all pregnant women and new mothers show symptoms of depression, and the ante- and postpartum rates of severe depression are 13% and 7% respectively. Untreated depression in the peripartum period has considerable long-term consequences both for the mother and for the fetus or infant.
- Routine screening by means of two simple questions about sadness and joylessness, or alternatively the EPDS, is quick and easy and should be administered in all pregnant women and new mothers by gynecologists and midwives.
- Women with a history of psychiatric illness should be in close contact with their treating physician from the early stages of pregnancy.
- Women who display further risk factors such as stressful life events or lack of (partner) support should be followed up for at least 3 months after giving birth.
- Recent data indicate that pharmacotherapy can and should be considered during pregnancy and lactation also in view of the lack of universal prompt availability of psychotherapeutic assistance.

6. Brand SR, Brennan PA: Impact of antenatal and postpartum maternal mental illness: how are the Children? Clin Obstet Gynecol 2009; 53: 441–55.
7. Pawlby S, Hay DF, Sharp D, Waters CS, O'Keane V: Antenatal depression predicts depression in adolescent offspring: prospective longitudinal community-based study. J Affect Dis 2009; 113: 236–43.
8. Härter M, Klesse C, Bermejo I, Schneider F, Berger M: Unipolar depression: diagnostic and therapeutic recommendations from the current S3/National Clinical Practice Guideline. Dtsch Arztebl Int 2010; 107(40): 700–8.
9. Hornstein C, Trautmann-Villalba P, Hohm E: Kasuistik zur Kindeswohlgefährdung bei postpartaler Depression. Forens Psychiatr Psychol Kriminol 2009; 3: 11–5.
10. Lindahl V, Pearson JL, Colpe L: Prevalence of suicidality during pregnancy and the postpartum. Arch Womens Ment Health 2005; 8: 77–87.
11. Appleby L, Mortensen PB, Faragher EB: Suicide and other causes of mortality after post-partum psychiatric admission. BJP 1998; 173: 209–11.
12. Beck CT: Predictors of postpartum depression: an update. Nurs Res 2001; 50: 275–85.
13. Ludermir AB, Lewis G, Valongueiro SA, de Araujo TVB, Araya R: Violence agianst women by their intimate partner during pregnancy and postnatal depression: a prospective cohort study. Lancet 2010; 376: 903–10.
14. Lancaster CA, Gold KJ, Flynn HA, Yoo H, Marcus SM, Davis MM: Risk factors for depressive symptoms during pregnancy: A systematic review. AJOG 2010; DOI: 10.1016/j.ajog.2009.09.007.
15. Dennis CL Creedy DK: Psychosocial and psychological interventions for preventing postpartum depression (review). Cochrane Database of Systematic Reviews 2004, Issue 4. Art. No.: CD001134. DOI: 10.1002/14651858.CD001134.pub2.
16. Milgrom J, Schembri C, Ericksen J, Ross J, Gemmill AW: Towards parenthood: an antenatal intervention to reduce depression, anxiety and parentig difficulties. J Affect Disord 2011; 130: 385–94.
17. Dennis CL, Ross LE, Grigoriadis S: Psychosocial and psychological interventions for treating antenatal depression. Cochrane Database of Systematic Reviews 2007, Issue 3. Art. No.: CD006309. DOI: 10.1002/14651858.CD006309.pub2.
18. Dennis CL, Hodnett ED: Psychosocial and psychological interventions for treating postpartum depression. Cochrane Database of Systematic Reviews 2007, Issue 4. Art. No.: CD006116. DOI: 10.1002/14651858.CD006116.pub2.
19. O'Hara MW: Postpartum depression: what we know. J Clin Psychol 2009; 65: 1258–69.
20. Berle JO, Spigset O: Antidepressant use during breastfeeding. Curr Womens Health Rev 2011; 7: 28–34.
21. Bader A, Frisch U, Wirz-Justice A, Riecher-Rössler A: Schwangerschaftsdepression und deren Behandlung. Nervenarzt 2010; 81: 267–76.
22. American College of Obstetricians and Gynaecologists (ACOG): Use of psychiatric medications during pregnancy and lactation. Washington (DC); 2008. ACOG practice bulletin; no. 92.
23. Chabrol H, Callahan S: Prevention and treatment of postnatal depression: review. Expert Rev Neurotherapeutics 2007; 7: 557–76.
24. Boath E, Bradley E, Henshaw C: The prevention of postnatal depression: a narrative systematic review. J Psychosom Obstet Gynaecol 2005; 26: 185–92.
25. DGPPN, BÄK, KBV, AWMF, AkdÄ, BPtK, BApK, DAGSHG, DEGAM, DGPM, DGPs, DGRW (eds.) für die Leitliniengruppe Unipolare Depression. S3-Leitlinie/Nationale Versorgungsleitlinie Unipolare Depression – Kurzfassung, 1st edition. DGPPN, ÄZQ, AWMF – Berlin, Düsseldorf 2009.

Corresponding author
Dr. rer. medic. Bettina Hübner-Liebermann
Klinik und Poliklinik für Psychiatrie und Psychotherapie der Universität Regensburg am Bezirksklinikum Regensburg
93053 Regensburg, Germany
bettina.huebner-liebermann@medbo.de

For eReferences please refer to:
www.aerzteblatt-international.de/ref2412

REVIEW ARTICLE

Recognizing and Treating Peripartum Depression

Bettina Hübner-Liebermann, Helmut Hausner, Markus Wittmann

eReferences

e1. Marcus SM: Depression during pregnancy: rates, risks and consequences. Can J Clin Pharmacol 2009; 16: 15–22.

e2. McGarry J, Kim H, Sheng X, Egger M, Baksh L: Postpartum depression and help-seeking behavior. J Midwifery Womens Health 2009; 54: 50–6.

e3. World Health Organisation (WHO): The Global Burden of Disease – 2004 Update. Available at: www.who.int/healthinfo/global_burden_disease /GBD_report_2004update_full.pdf (Last accessed on 2 February 2012).

e4. Marcus SM, Heringhausen JE: Depression in childbearing women: When depression complicates pregnancy. Prim Care 2008; 36: 151–64.

e5. Kozhimannil KB, Pereira MA, Harlow BL: Association between diabetes and perinatal depression among low-income mothers. JAMA 2009; 301: 842–7.

e6. Henshaw C: Mood disturbance in the early puerperium: a review. Arch Womens Ment Health 2003; 6(Suppl.2): s33–s42.

e7. Doucet S, Jones I, Letourneau N, Dennis CL, Blackmore ER: Interventions for the prevention and treatment of postpartum psychosis: a systematic review. Arch Womens Ment Health 2010; DOI 10.1007/s00737–010–0199–6.

e8. Chandra PS, Venkatasubramanian G, Thomas T: Infanticidal ideas and infanticidal behavior in indian woman with severe postpartum psychiatric disorders. J Nerv Ment Dis 2002; 190: 457–61.

e9. Trautmann-Villalba P, Hornstein C: Tötung des eigenen Kindes in der Postpartalzeit. Nervenarzt 2007; 78: 1290–5.

e10. Boyce P, Hickey A: Psychosocial rsik factors of major depression after childbirth. Soc Psychiatry Psychiatr Epidemiol 2005; 40: 605–12.

e11. Bloch M, Rotenberg N, Koren D, Klein E: Risk factors associated with the development of postpartum mood disorders. J Affect Disord 2005; 88: 9–18.

e12. Skrundz M, Bolten M, Nast I, Hellhammer DH, Meinlschmidt G: Plasma oyxtocin concentration during pregnancy is associated with development of postpartum depression. Neuropsychopharmacology 2011; 36: 1886–93.

e13. Dennis CL, Chung-Lee L: Postpartum depression help-seeking barriers and maternal treatment preferences: A qualitative review. Birth 2006; 33: 323–31.

e14. Pearlstein TB, Zlotnick C, Battle CL, et al.: Patient choice of treatment for postpartum depression: a pilot study. Arch Womens Ment Health 2006; 9: 303–8.

e15. O'Hara MW, Stuart S, Gorman LL, Wenzel A: Efficacy of Interpersonal Psychotherapy for postpartum depression. Arch Gen Psychiatry 2000; 57: 1039–45.

e16. Turmes L, Hornstein C: Stationäre Mutter-Kind-Einheiten in Deutschland: Ein Bericht zum Status Quo. Nervenarzt 2007; 78: 773–9.

e17. Hornstein C, Trautmann-Villalba P, Hohm E, et al.: Interaktionales Therapieprogramm für Mütter mit postpartalen psychischen Störungen: Erste Ergebnisse eines Pilotprojekts. Nervenarzt 2007; 78: 679–84.

e18. PEKiP e. V. Das PEKiP-Konzept. Available at: www.pekip.de/konzept.html (Last accessed on 16 March 2011).

e19. Grzeskowiak LE, Gilbert AL, Morrison JL: Investigating outcomes following the use of selective serotonin reuptake inhibitors for treating depression in pregnancy: A focus on methodological issues. Drug Saf 2011; 43: 1027–48.

e20. Embryotox: Frau und Psyche. Available at: www.embryotox.de/frauen_psyche.html (Last accessed on 25 January 2012).

e21. Rohde A, Schaefer C: Psychopharmakotherapie in Schwangerschaft und Stillzeit. Thieme Verlag, 2010.

e22. Weil S, Deppe C, Noachtar S: The treatment of women with epilepsy. Dtsch Arztebl Int 2010; 107(45); 787–93.

e23. Dennis CL, Allen K: Interventions (other than pharmacological, psychosocial or psychological) for treating antenatal depression. Cochrane Database of Systematic Reviews 2008, Issue 4. Art. No.: CD006795. DOI: 10.1002/14651858.CD006795.pub2.

e24. Wirz-Justice A, Bader A, Frisch U, et al.: A randomized, double-blind, placebo-controlled study of light therapy for antepartum depression. J Clin Psych 2011; e-pub 10.4088/JCP.10m06188blu.

e25. Kelly RH, Zatzick DF, Anders TF: The detection and treatment of psychiatric disorders and substance use among pregnant women cared for in obstetrics. Am J Psychiatry 2001; 158: 213–9.

e26. Johanson R, Chapman G, Murray D, Johnson I, Cox J: The North Staffordshire Maternity Hospital prospective study of pregnancy-associated depression. J Psychosom Obstet Gynecol 2000; 21: 93–7.

e27. Marcus SM, Flynn HA, Blow FC, Barry KL: Depressive symptoms among pregnant women screened in obstetrics settings. J Womens Health 2003; 12: 373–80.

e28. Wisner KL, Logsdon MC, Shanahan BR: Web-based education for postpartum depression: conceptual develoment and impact. Arch Womens Ment Health 2008; 11: 377–85.

e29. Bennett IM, Palmer S, Marcus S, et al.: „One end has nothing to do with the other:" patient attitudes regarding help seeking intention for depression in gynecologic and obstetric settings. Arch Womens Ment Health 2009; 12: 301–8.

e30. Marcé Gesellschaft: Materialien – Edinburgh Postnatal Depression Scale. Available at: www.marce-gesellschaft.de/materialien_files/FolieEPDS.pdf (Last accessed on 2 February 2012).

e31. Whooley MA, Avins AL, Miranda J, Browner WS: Case-finding instruments for depression: two questions are as good as many. J Gen Intern Med 1997; 12: 439–45.

e32. National Institute for Health and Clinical Excellence: Antenatal and post-natal mental health, the nice guideline on clinical management and service guidance. The British Psychological Society & The Royal College of Psychiatrists London, 2007.