Postpartum Depression:
An Overview of Treatment and Prevention

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Outline

- ✓ General information about postpartum depression
- ✓ Treatments for postpartum depression
- ✓ Prevention methods for postpartum depression
- ✓ Treating and preventing postpartum depression in resource-poor settings
- ✓ Assignments

Sources

- **Cochrane Reviews**
  - Psychosocial and Psychological Interventions for Preventing Postpartum Depression (2008)
  - Psychosocial and Psychological Interventions for Treating Postpartum Depression (2009)
  - Oestrogens and Progestins for Preventing and Treating Postpartum Depression (2010)
  - Antidepressant Prevention of Postnatal Depression

- Additional articles not cited in the Cochrane Reviews found at the WHO Library or PubMed searches (search conducted in July 2011)

Systematic Reviews (SRs)

SR1: Psychosocial and psychological interventions for treating postpartum depression.

Primary objective: Assess the effects of all psychosocial and psychological interventions compared with usual postpartum care in the recovery or reduction of depressive symptomatology.

Number of studies: 10

Type of studies: Randomized controlled trials and quasi-randomized trials

Where: United Kingdom, Canada, United States, Australia and Sweden

Reference: Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2009.

SR2: Oestrogens and progestins for preventing and treating postpartum depression.

Primary objective: Assess the effects of oestrogens and progestins compared with placebo or usual care in the prevention and treatment of postpartum depression.

Number of studies: 2

Type of studies: Randomized controlled trials

Where: United Kingdom and South Africa

Reference: Dennis CL, Ross LE and Herxheimer A. Oestrogens and Progestins for Preventing and Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2010.

Systematic Reviews *(cont'd)*

SR3: Psychosocial and psychological interventions for preventing postpartum depression.

Primary objective: Assess the effects of diverse psychosocial and psychological interventions compared with usual postpartum care to reduce the risk of developing postpartum depression

Number of studies: 15

Type of studies: Randomized controlled trials

Where: Australia, United Kingdom, United States and China

Reference: Dennis CL and Creedy DK. Psychosocial and Psychological Interventions for Preventing Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2008.

SR4: Antidepressant prevention of postnatal depression.

Primary objective: To evaluate the effectiveness of antidepressant drugs in addition to standard clinical care in the prevention of postnatal depression

Number of studies: 2

Type of studies: Randomized controlled trials

Where: United States

Reference: Howard L, Hoffbrand Se, Henshaw C, Boath L and Bradley E. Antidepressant Prevention of Postnatal Depression. *Cochrane Database of Systematic Reviews*. 2009.

Definition of Postpartum Depression

Non-psychotic depressive episode that begins or extends into the first year postpartum

Postpartum depression is synonymous with postnatal depression.

Postpartum depression – a special state of mental health disorder and a variant of depression

WHO Definition of Maternal Mental Health

"A state of well-being in which a mother realizes her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her community."

Not the same as the absence of mental illness, but reflects a capacity to adapt and cope

Depression -- the most common mental disorder!
-- risk of depression in women is approximately two fold higher than in men

Engle PL. Maternal Mental Health: Program and Policy Implications. *Am J clin Nutr* 2009; 89(suppl): 963S-6S.

Rahman A, Patel V, Maselko J and Kirkwood B. The neglected 'm' in MCH programmes- why mental health of mothers is important for child nutrition. *Tropical Medicine and International Health* 2008; 13(4): 579-583.

Maternal Mental Health and MDGs

- Mental health not specifically mentioned in MDGs, but three goals are directly or indirectly related to women's mental health or the impact of the problem
  - MDG 3: Promoting gender equality and empowering women
  - MDG 4: Reducing child mortality
  - MDG 5: Improving maternal health

Engle PL. Maternal Mental Health: Program and Policy Implications. *Am J clin Nutr* 2009; 89(suppl): 963S-6S.

Advocacy at the Global Level

Lancet (2007, special series)

- Highlighted the critical lack of attention to mental health issues
- Emphasized the importance of including maternal depression as a risk factor for improving women's health and overall development (Gill et al.)
- "No health without mental health" (Patel et al.)

WHO & UNFPA Joint Statement of June 2007

Maternal mental health is fundamental to attaining 5 of the 8 MDGs. Called on international agencies and governments to take immediate action to address maternal health as part of health services.

Engle PL. Maternal Mental Health: Program and Policy Implications. *Am J clin Nutr* 2009; 89(suppl): 963S-6S. V

World Health Organization. Maternal mental health and child health and development in low and middle income countries. Report of the WHO-UNFPA meeting held in Geneva, Switzerland. 30 January- 1 February 2008.

2007 Joint Statement by WHO and UNFPA

Specific recommendations

- **Early detection and validated screening instruments**
- **Psychoeducational interventions that combine information with psychological support**
- **Improvement in partner relationship through the promotion of gender equality**
- **Culturally sensitive, solution-focused brief psychological therapies**
- **Improvement in social support for women**
- **Improvement in access to education and vocational training for girls and women**

World Health Organization. Maternal mental health and child health and development in low and middle income countries. Report of the WHO-UNFPA meeting held in Geneva, Switzerland. 30 January- 1 February 2008.

Engle PL. Maternal Mental Health: Program and Policy Implications. *Am J Clin Nutr* 2009; 89(suppl): 963S-6S. V

Why Focus on Postpartum Depression?

- Postpartum depression is a major health issue for many women from diverse cultures, yet it remains **underdiagnosed** and **undertreated**, especially in low-income countries.

- Substantially contributes to maternal and infant morbidity and mortality

Adverse Effects: Maternal Parenting

- Maternal PPD can negatively affect the mother's ability to parent

- It is associated with
  - Poorer responsiveness to infant cues
  - More negative, hostile, or disengaged parenting behavior

Adverse Effects: Infant

- Maternal PPD can also negatively affect the infant

- In infants, maternal PPD is associated with
  - Lower cognitive functioning
  - Adverse emotional development
  - Problematic sleep habits
  - Lower preventative health care utilization
  - Undesirable safety practices
  - Behavioral problem
  - Higher risk for anxiety, disruptive and affective disorders
  - Negative breastfeeding and nutritional outcomes

Fitelson E, Kim S, Baker A and Leight K. Treatment of Postpartum Depression: Clinical, Psychological and Pharmacological Options. *International Journal of Women's Health* 2011; 1(3): 1-14.

Etiology

- Unclear

- Hormonal basis for postpartum depression has been hypothesized due to sudden and substantial fluctuations in concentrations of steroid hormones
  - Little evidence supports a biological basis

- Multifactorial etiology has been suggested
  - Unlikely that a single preventive/treatment modality will be effective for all women

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2009.

Prevalence

13%

(from a meta-analysis of 59 studies)

More common and more grave for women in low-income countries, especially in sub-Saharan Africa and Asia (estimates range from **25% to 60%)**

Fitelson E, Kim S, Baker A and Leight K. Treatment of Postpartum Depression: Clinical, Psychological and Pharmacological Options. International Journal of Women's Health 2011; 1(3): 1-14.

Risk Factors

- Previous history of depression
- Depression or anxiety during pregnancy
- Marital conflict
- Stressful recent life events
- Low levels of social support or partner support
- Low socioeconomic status
- Obstetric complications

Stewart, D.E., Robertson, E., Dennis, C-L., Grace, S.L., & Wallington, T. (2003). Postpartum depression: Literature Review of Risk Factors and Interventions.

Clinical Symptoms

- Uneasiness
- Irritability
- Confusion
- Forgetfulness
- Thoughts of suicide
- Anhedonia
- Fatigue
- Insomnia
- Anxiety
- Guilt

Presentation of symptoms is generally considered to be the same as for episodes of major depression at other times.

Diagnosis

- Major Depressive Episode (MDE) as defined by the Diagnostic and Statistical Manuel do not differ in the postpartum period as compared to other times
- Include at least two weeks of persistent low mood or anhedonia
- AND at least four of the following:
  - Increased or decreased appetite, sleep disturbance, psychomotor agitation or retardation, low energy, feelings of worthlessness, low concentration and suicidal ideation

Fitelson E, Kim S, Baker A and Leight K. Treatment of Postpartum Depression: Clinical, Psychological and Pharmacological Options. *International Journal of Women's Health* 2011; 1(3): 1-14.

Screening for Postpartum Depression

- There are simple, generally reliable and affordable tools for the recognition of mental health problems in women during the perinatal period

- Recommended at first postnatal obstetrical visit (usually 4-6 weeks after delivery) or in family practice or pediatric setting

- *Edinburgh Postnatal Depression Scale** most commonly used screening tool
  - 10 item self-report that emphasizes emotional and functional factors rather than somatic symptoms

*See Appendix for additional information

Widely Used Screening Instruments* for Common Mental Disorders in Primary-care Management (for adaptation for postpartum depression)

- General Health Questionnaires (GHQ, 12 items)
- Primary Health Questionnaire (PHQ, 9 items)
- Kessler Psychological Distress Scale (K10, 10 items, 6 items)
- Self-Reporting Questionnaire (SRQ, 20 items)

All had relatively good internal consistency. However, predictive validity was relatively weak. Importance of balancing for the individual setting.

Patel V, Araya R, Chowdhary N, King M, Kirkwood B, Nayak S, Simon G and Weiss HA. Detecting common mental disorders in primary care in India: a comparison of five screening questionnaires. *Psychological Medicine* (2008); 38: 221-228.

*See Appendix for additional information

Treatment: Overview

- Pharmacological
  - Antidepressant medication
  - Hormone therapy
- Psychological and Psychosocial
  - Interpersonal therapy
  - Cognitive behavioral therapy
  - Nondirective counseling
  - Peer and partner support
  - Parent-training programs
  - Telephone interventions

Pharmacological Treatments

Antidepressant Medication

- Growing amount of literature suggests that postpartum depression can be thought of as a variant of major depression that respond similarly to antidepressant medication

- Concerns
  - Metabolic changes in postpartum period
  - Exposure of the infant to medication through breast milk
  - Perceived stigma of being perceived as a “bad mother” for requiring medication

Dennis CL, Ross LE and Herxheimer A. Oestrogens and Progestins for Preventing and Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2010.

Hormone Therapy

- Oestrogens
  - In one trial of women with severe depression, oestrogen therapy was associated with greater improvement in depression compared with the placebo
  - Additional studies needed
- Progestogen (synthetic)
  - May increase depression

Dennis CL, Ross LE and Herxheimer A. Oestrogens and Progestins for Preventing and Treating Postpartum Depression. *Cochrane Database of Systematic Reveiws*. 2010.

Many women may hesitate to take antidepressants and hormones due to concerns about infant exposure to medication through breast milk or concerns about potential side effects and therefore often prefer psychological treatments.

Psychological and Psychosocial Treatments

General Information

- Clear link between postpartum depression and lack of social support
- Overall, uncertain effect
- More research needed

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2009.

Interpersonal Therapy (IPT)

- Patient and clinician select one of four interpersonal problem areas (role transition, role dispute, grief or interpersonal deficits) as treatment focus
  - Over course of therapy (~12-20 weeks), strategies are pursued to assist patients in modifying problematic approaches to relationships and building social support networks

- Preliminary results: IPT may be an effective treatment

Women and Babies Health and Wellbeing: Action through Trials (WOMBAT). Maternal Mental Health Synthesis. 2011.

Cognitive Behavioral Therapy (CBT)

- Focuses on helping depressed patients modify distorted patterns of negative thinking and to make behavioral changes that enhance coping and reduce distress

- Well-studied

- Meta-analysis of 28 studies found that CBT is an effective treatment option
  - However, considerable time, commitment and cost is required to successfully complete CBT

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2009.

Nondirective Counseling

- Aka “person-centered” counseling
- Counseling that recognizes people can often solve their own problems without being provided with a solution by the counselor
- Based on use of empathetic and nonjudgmental listening and support
- Four European trials evaluated effectiveness: Positive results

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2009.

Peer and Partner Support

- Studies do not provide enough data to recommend a specific partner-based intervention
- But they do suggest that including partner in treatment of PPD may be beneficial to some women

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2009.

Parent-Training Programs

Compilation of 26 studies largely from developed countries showed that parent programs have beneficial effects on treating maternal postpartum depression, anxiety, self-esteem and relationship with spouse/ marital adjustment, but not for social support

Women and Babies Health and Wellbeing: Action through Trials (WOMBAT). Maternal Mental Health Synthesis. 2011.

Telephone Interventions

- Telephone-based interventions are flexible, private and non-stigmatizing
  - Increased use of cell phones in low-income countries
- Pilot study found a positive result on PPD when evaluating the effect of telephone-based peer (mother-to-mother) support
- Larger studies warranted

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *The Cochrane Collaboration*. 2009.

Other Nonpharmacologic Treatments for Postpartum Depression

Additional research is needed to evaluate their effectiveness

- Electroconvulsive therapy
- Bright light therapy
- Omega-3 fatty acids
- Acupuncture and massage
- Exercise

Fitelson E, Kim S, Baker A and Leight K. Treatment of Postpartum Depression: Clinical, Psychological and Pharmacological Options. International Journal of Women's Health 2011; 1(3): 1-14.

Prevention Methods

Prevention: Overview

- Preventative approaches are needed because of the long-term effects of maternal PPD
- Usually focus on mitigating risk factors
- Limited success of finding effective preventative approaches
- Interventions targeting “at-risk” women may be more beneficial to those targeting the general population

Dennis CL and Creedy DK. Psychosocial and Psychological Interventions for Preventing Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2008.

Prevention Methods: Overview

- Psychosocial and Psychological Interventions
  - In-hospital psychological debriefings
  - Antenatal and postnatal classes
  - Home visits
  - Continuity of care and early postpartum follow-up
  - Professional support provided postnatally

Ineffective Methods

- Evidence suggests that these methods should not be implemented
  - In-hospital psychological debriefings after childbirth
  - Antenatal and postnatal classes about postpartum depression

Dennis CL and Creedy DK. Psychosocial and Psychological Interventions for Preventing Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2008.

Continuity of Care and Early Postpartum Follow-Up

- Mixed results
- Two trials evaluating the effect of early postpartum follow-up found no preventive effect
- Armstrong, 1999- Research indicated that intensive nursing home visits with at-risk mother was protective during the first six weeks postpartum
- MacArthur, 2002- Cluster randomized control trial found that flexible, individualized, midwifery-based postpartum care that incorporated postpartum depression screening tools had a preventative effective

Dennis CL and Creedy DK. Psychosocial and Psychological Interventions for Preventing Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2008.

Professional Support Provided Postnatally

- Professional home visit
  - Intensive nursing home visits
  - Flexible postpartum care provided by midwives

- Shows promise in preventing postpartum depression
  - Individual based interventions may be more effective than group based interventions

Dennis CL and Creedy DK. Psychosocial and Psychological Interventions for Preventing Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2008.

Three RCTs in Depression* Published in 2003

Underlying objective -- Identify treatment options that are feasible and affordable to low-income, poor populations in developing countries

Group therapy that emphasized support and sharing between members of the same community highly effective (in Uganda and Chile trials) and Chile

Evidence to "actively combat the skepticism of policy makers that there nothing to be done against depression in developing countries." (Patel et al., 2004)

Araya A et al. Treating depression in primary care among low-income women in Santiago, Chile: a randomized controlled trial. *Lance*t 2003:361:995-1000.
Bolton P et al. Group interpersonal psychotherapy for depression in rural Uganda. *J American Medical Association* 2003;289:3117-3124.
Patel V et al. The efficacy and cost-effectiveness of a drug and psychological treatment for common mental disorders in general health care in Goa, India: a randomized controlled trial. Lancet 2003;361:33-39.
Patel V et al. Editorial: Treating depression in the developing world. *Tropical Medicine and International Health* 2004;9:539-541.

*Note that these slides are not focused on postpartum depression, but depression in general. However, we included these reviews to emphasize the kinds of studies that can be undertaken focusing on maternal postpartum depression.

Program Interventions by Community Health Workers

Involvement of and Treatment by Community Health Workers

- **Cognitive behavioral interventions**

  Modified and delivered by CHWs (3 days of training along with intensive monthly group supervision) in a RCT in Pakistan

Conclusion and Implication

A health system does not need expensive mental-health specialists to deliver an effective intervention for most people with the most common of all mental disorders.

Rahman A et al. Cognitive behavior therapy-based Interventions by community health workers for mothers with depression and their infants in rural Pakistan: a cluster-randomised controlled trial. *Lancet* 2008; 371: 902-09.

Cognitive Behavioral Interventions by CHWs *(cont'd)*

Participants: Married women in their third trimester of pregnancy with perinatal depression in rural Rawalpindi, Pakistan

Intervention Group: Primary health workers were trained to deliver psychological intervention to the depressed mothers (n=463)

Control group: Untrained health workers made an equal number of visits to the depressed mothers (n=440)

Results: 23% and 53% of mothers in the intervention and control groups, respectively, met the criteria for major depression; Effects sustained at 12 months

Conclusion: Psychological intervention delivered by CHWs has potential to be integrated into health system in resource-poor settings to reduce rates of maternal postpartum depression.

Rahman A et al. Cognitive behavior therapy-based Interventions by community health workers for mothers with depression and their infants in rural Pakistan: a cluster-randomised controlled trial. *Lancet* 2008; 371: 902-09.

Paternal Postpartum Depression

Paternal Postpartum Depression

- Prevalence is estimated to be between 4.5%-10.4%
  - Little is known about prevalence in developing countries
- Paternal postpartum depression is associated with maternal postpartum depression
- Little is known about the extent of paternal postpartum depression, risk factors and its effects on the family
  - Necessitates additional research

Nazareth I. Should Men be Screened and Treated for Postnatal Depression? *Expert Review*s 2011; 11(1): 1-3.
Pinheiro KAT, Coelho F, Quevedo L et al. Paternal Postpartum Mood: Bipolar Episodes? *Revista Brasileira de Psiquiatria* 2011.

Resource-Poor Settings

Treatment and Prevention in Resource-poor Settings

- Low-income countries generally have meagre resources for mental illness and little progress has been made in improving treatment modalities

- Treatment with medication is unlikely to be affordable or even recommended in many settings

Program Interventions for resource-poor settings

Development of Social support – A good beginning

- **Family and community awareness and support**
- **Minimizing social stigma**
- **Infant massage**
- **Improving mother-child interactions**
- **Better understanding of maternal distress at many levels**

Engle PL. Maternal Mental Health: Program and Policy Implications. *Am J clin Nutr* 2009; 89(suppl): 963S-6S.

Agenda for action for resource-poor settings

1. **Develop a legal and policy framework**
2. **Develop, adapt and implement innovative models for CHWs/PHCW**
3. **Evaluate accessibility, accessibility, and effectiveness of the model program/s**
4. **Build capacity**
5. **Develop indicators**
6. **Build evidence base for cost-effective scalable preventive treatments**
7. **Establish funding for research and evaluation**

Adapted from: Engle PL. Maternal mental health: program and policy implications. *Am J Clin Nutr* 2009;89(supple):963S-6S.

Screening for Postpartum Depression in Resource-poor Settings

- There are simple, generally reliable, and affordable tools for the recognition of mental health problems in women during perinatal period
  - Ex. Edinburgh Postnatal Depression Scale
- Community health workers can effectively screen women
- Depression can be identified relatively easily within the context of primary health care
- The most effective screening tool:
  - Good sensitivity and specificity
  - Quick
  - Easy to interpret
  - Readily incorporated into practice
  - Culturally sensitive
- Depression screening must be combined with the ability to refer cases and care plans to achieve the desired outcomes

Boyd RC, Mogul M, Newman D, Coyne JC. Screening and Referral for Postpartum Depression Among Low-Income Women: A Qualitative Perspective from Community Health Workers. *Depression Research and Treatment*; 2011.

Action Agenda at the Clinic

- Assess the feasibility of implementing screening tools
  - Encourage screening performed by physicians or community health workers
  - Increase utilization of Edinburgh Postnatal Depression Scale (see appendix)
- Promote clinical research focused on reducing PPD

Conclusions

- PPD affects women from all races throughout the world. Average prevalence is 13% among postpartum mothers; most likely much higher in low-income countries
- Numerous psychosocial and psychological interventions have been identified and studied as possible strategies to prevent postpartum depression. In recent years, efforts have been made to identify simple and effective approaches to reducing postpartum depression through community health workers. These studies have shown that a health system does not need expensive mental health specialists to deliver an effective intervention for women with postpartum depression which is the most common of all mental disorders.
- More research as well as actions are needed to address the problem of postpartum depression that has often remained hidden, especially in low-income countries around the world.

Assignment

(for those interested in the topic, you may choose from some of the tasks suggested below)

- Review existing policies and programs, if any, in PPD in your country and prepare a summary.
- Conduct a literature search on what research, if any, has been conducted in the country you are interested in and prepare a short summary of the findings
- Review the attached article on cognitive behavior therapy-based interventions by community health workers for mothers with depression, and prepare a commentary on what aspects of the interventions could be feasible and acceptable to implement as a pilot project in your own community
- Suppose you are planning to do a *post-intervention evaluation* only of the pilot project. Propose a plan for evaluation of what worked and what did not the community-based pilot project
- Consider conducting formative research in your community to determine local awareness of PPD, local terms used to describe PPD, and current treatment for PPD

Key Reading Materials*

Araya A et al. Treating depression in primary care among low-income women in Santiago, Chile: a randomized controlled trial. *Lance*t 2003; 361: 995-1000.

Bolton P et al. Group interpersonal psychotherapy for depression in rural Uganda. *J American Medical Association* 2003; 289: 3117-3124.

Dhanda A and Narayan T. Mental health and human Rights. *The Lancet* 2007; 370: 1197-1198.

Engle PL. Maternal Mental Health: Program and Policy Implications. *Am J clin Nutr* 2009; 89(suppl): 963S-6S.

Fitelson E, Kim S, Baker A and Leight K. Treatment of Postpartum Depression: Clinical, Psychological and Pharmacological Options. *International Journal of Women's Health* 2011; 1(3): 1-14.

Kessler RC, Andrews G, Colpe LJ, Hiripi E, Mroczek DK, Normand SLT, Walters EE, Zaslavsky AM. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine* 2002; 32: 959-976.

Nazareth I. Should Men be Screened and Treated for Postnatal Depression? *Expert Review*s 2011; 11(1): 1-3.

Patel V et al. Detecting common mental disorders in primary care in India: a comparison of five screening questionnaires. *Psychological Medicine* (2008); 38: 221-228.

Patel V et al. The efficacy and cost-effectiveness of a drug and psychological treatment for common mental disorders in general health care in Goa, India: a randomized controlled trial. *Lancet* 2003; 361: 33-39.

Patel V, Araya R and Bolton P. Treating Depression in the Developing World. *Tropical medicine and International Health* 2004; 9(5): 539-541.

Rahman A, Malik A, Sikander S, Roberts C, Creed F. Cognitive behaviour therapy-based interventions by community health workers for mothers with depression and their infants in rural Pakistan: a cluster-randomized controlled trial. *The Lancet* 2008; 372: 902-909.

Rahman A, Iqbal Z and Harrington R. Life events, social support and depression in childbirth: perspectives from a rural community in the developing world. *Psychological Medicine* 2003; 33: 1161-1167.

Rahman A, Patel V, Maselko J and Kirkwood B. The neglected 'm' in MCH programmes- why mental health of mothers is important for child nutrition. *Tropical Medicine and International Health* 2008; 13(4): 579-583.

Stewart, D.E. et al. (2003). Postpartum depression: Literature Review of Risk Factors and Interventions.

Surkan PJ, Kennedy CE, Hurley KM, Black MM. Maternal depression and early childhood growth in developing countries: systematic review and meta-analysis. *Bull World Health Organ* 2011; 287: 607-615D.

World Health Organization. Maternal mental health and child health and development in low and middle income countries. Report of the WHO-UNFPA meeting held in Geneva, Switzerland. 30 January- 1 February 2008.

*Let Dr. Thapa know (thapas@who.int) if you are interested in obtaining any of the references that are not included in the reading materials.

Additional Articles*

Boyd RC, Mogul M, Newman D, Coyne JC. Screening and Referral for Postpartum Depression Among Low-Income Women: A Qualitative Perspective from Community Health Workers. *Depression Research and Treatment*; 2011.

Dennis CL, Ross LE and Herxheimer A. Oestrogens and Progestins for Preventing and Treating Postpartum Depression. *Cochrane Database of Systematic Reviews.* 2010.

Dennis CL and Creedy DK. Psychosocial and Psychological Interventions for Preventing Postpartum Depression. *Cochrane Database of Systematic Reviews*. 2008.

Dennis CL and Hodnett ED. Psychosocial and Psychological Interventions for Treating Postpartum Depression. *Cochrane Database of Systematic Reviews.* 2009.

Howard L, Hoffbrand Se, Henshaw C, Boath L and Bradley E. Antidepressant Prevention of Postnatal Depression. *Cochrane Database of Systematic Reviews*. 2009.

Pinheiro KAT, Coelho F, Quevedo L et al. Paternal Postpartum Mood: Bipolar Episodes? *Revista Brasileira de Psiquiatria* 2011.

Women and Babies Health and Wellbeing: Action through Trials (WOMBAT). Maternal Mental Health Synthesis. 2011.

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Appendix A: Edinburgh Postnatal Depression Scale for Clinical Use

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   - ☐ As much as I always could
   - ☐ Not quite so much now
   - ☐ Definitely not so much now
   - ☐ Not at all

2. I have looked forward with enjoyment to things
   - ☐ As much as I ever did
   - ☐ Rather less than I used to
   - ☐ Definitely less than I used to
   - ☐ Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   - ☐ Yes, most of the time
   - ☐ Yes, some of the time
   - ☐ Not very often
   - ☐ No, never

4. I have been anxious or worried for no good reason
   - ☐ No, not at all
   - ☐ Hardly ever
   - ☐ Yes, sometimes
   - ☐ Yes, very often

*5 I have felt scared or panicky for no very good reason
   - ☐ Yes, quite a lot
   - ☐ Yes, sometimes
   - ☐ No, not much
   - ☐ No, not at all

*6. Things have been getting on top of me
   - ☐ Yes, most of the time I haven't been able to cope at all
   - ☐ Yes, sometimes I haven't been coping as well as usual
   - ☐ No, most of the time I have coped quite well
   - ☐ No, I have been coping as well as ever

*7 I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

*8 I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Not very often
   - ☐ No, not at all

*9 I have been so unhappy that I have been crying
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Only occasionally
   - ☐ No, never

*10 The thought of harming myself has occurred to me
   - ☐ Yes, quite often
   - ☐ Sometimes
   - ☐ Hardly ever
   - ☐ Never

Appendix B: Kessler Psychological Distress Scale (K10)

1. During the last 30 days, about how often did you feel tired out for no good reason?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

2. During the last 30 days, about how often did you feel nervous?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

3. During the last 30 days, about how often did you feel so nervous that nothing could calm you down?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

4. During the last 30 days, about how often did you feel hopeless?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

5. During the last 30 days, about how often did you feel restless or fidgety?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

6. During the last 30 days, about how often did you feel so restless you could not sit still?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

7. During the last 30 days, about how often did you feel depressed?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

8. During the last 30 days, about how often did you feel that everything was an effort?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

9. During the last 30 days, about how often did you feel so sad that nothing could cheer you up?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

10. During the last 30 days, about how often did you feel worthless?				
1. None of the time	2. A little of the time	3. Some of the time	4. Most of the time	5. All of the time

Appendix C: Primary Health Questionnaire

Over the *last 2 weeks,* how often have you been bothered by any of the following problems? *(use "✓" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3

Appendix C: Self-Reporting Questionnaire

1.	Do you often have headaches?	yes/no
2.	Is your appetite poor?	yes/no
3.	Do you sleep badly?	yes/no
4.	Are you easily frightened?	yes/no
5.	Do your hands shake?	yes/no
6.	Do you feel nervous, tense or worried?	yes/no
7.	Is your digestion poor?	yes/no
8.	Do you have trouble thinking clearly?	yes/no
9.	Do you feel unhappy?	yes/no
10.	Do you cry more than usual?	yes/no
11.	Do you find it difficult to enjoy your daily activities?	yes/no
12.	Do you find it difficult to make decisions?	yes/no
13.	Is your daily work suffering?	yes/no
14.	Are you unable to play a useful part in life?	yes/no
15.	Have you lost interest in things?	yes/no
16.	Do you feel that you are a worthless person?	yes/no
17.	Has the thought of ending your life been on your mind?	yes/no
18.	Do you feel tired all the time?	yes/no
19.	Do you have uncomfortable feelings in your stomach?	yes/no
20.	Are you easily tired?	yes/no