

# A depression preventive intervention for rural low-income African-American pregnant women at risk for postpartum depression

Kathy Crockett · Caron Zlotnick · Melvin Davis ·  
Nanetta Payne · Rosie Washington

Received: 11 January 2008 / Accepted: 15 October 2008 / Published online: 4 November 2008  
© Springer-Verlag 2008

**Abstract** Postpartum depression (PPD) is a major health problem for many women, including rural low-income African-American women. Researchers have documented the long lasting consequences of PPD. The purpose of this pilot study was to examine the initial acceptability, feasibility, and effectiveness of the ROSE Program, a brief, interpersonally-based intervention in a group of low-income, rural African-American pregnant women at risk for PPD. Participants were 36 African-American pregnant women at risk for PPD who attended a rural hospital-affiliated prenatal clinic. Participants were randomly assigned to the ROSE Program or to treatment as usual

(TAU). Outcomes included measures of depressive symptoms, postpartum adjustment, and parental stress at 3 months postpartum. At 3 months postpartum, the study found no significant differences between the two conditions in degree of depressive symptoms or level of parental stress. The women in the intervention condition reported significantly better postpartum adjustment at 3 months postpartum than women in the TAU group. Those in the ROSE Program reported improvement in depressive symptoms over time, whereas women in the TAU group did not evidence such changes. These results provide initial effectiveness for the ROSE Program in improving postpartum functioning in a group of low-income, rural African-American pregnant women.

---

This pilot study was funded by a grant from the Klingenstein Third Generation Foundation, New York, New York. The research reported does not reflect the views of this organization.

---

K. Crockett · M. Davis  
Department of Psychology, Jackson State University,  
Jackson, MS, USA

C. Zlotnick  
Department of Psychiatry and Human Behavior,  
Women and Infants Hospital, Brown Medical School,  
Providence, RI, USA

M. Davis · N. Payne  
Mississippi Urban Research Center, Jackson State University,  
Jackson, MS, USA

R. Washington  
Lexington, MS, USA

*Present address:*  
K. Crockett (✉)  
Department of Family Medicine, University of Mississippi  
Medical Center,  
2500 North State Street,  
Jackson, MS 39216-4500, USA  
e-mail: kcrockett@familymed.umsmed.edu

**Keywords** Postpartum depression · Intervention ·  
Low-income women

## Introduction

Postpartum depression (PPD) affects 12% to 15% of childbearing women (Beck 1998; Cox et al. 1987; O'Hara and Swain 1996). PPD is a major public health problem for women of different cultures (Alfonso et al. 2000; Oates et al. 2004; Wisner et al. 2006). African-American women are at risk for PPD (Perez-Stable et al. 1990; Zayas et al. 2002) due to low income (Orr et al. 1989), negative life events (Belle 1990), and single marital status (Zayas et al. 2002). In addition, a relationship between poor social support and depression symptom severity has been found in low-income African-American women (Logsdon et al. 2000). When compared to White women, African-American women are more likely to experience depression after having a baby (Segre et al. 2006).

PPD often goes unrecognized by family members (Beck and Gable 2001). However, PPD affects a mother's ability to care for herself, the infant, and her family (Amankwaa 2003; Evans et al. 2001). Furthermore, PPD can have long-lasting consequences on the cognitive development of the infant (Cogill et al. 1986) such as low self-esteem, poor self-regulation, behavior problems, difficult temperament, and increased risk for impaired mental and motor development (Goodman and Gotlib 1999). In addition, PPD affects maternal compliance with preventative health practices and child health care visits (Chung et al. 2004).

Prevention of PPD is important to African-American women because there are cultural factors that affect how they manage their depression, and as a result, they are less likely to avail themselves of mental health services than Whites (Shapiro et al. 1985; Swartz et al. 1998). Many African-American women are reluctant to seek professional help or disclose emotional problems because they are socialized to handle life's stressors (Amankwaa 2003), feel as though they should be able to cope (Greeno et al. 1999; Sue et al. 1991), and view such disclosures as a sign of weakness (Brown and Lumley 2000). Difficulties with diagnosing and treating PPD among African-American women are also due in part to their different coping mechanisms in managing their mental illness. These include spirituality (Broman 1996; Taylor and Chatters 1991), ignoring the negative feelings hoping they will go away (Templeton et al. 2003), and just "dealing with it" (Amankwaa 2003). When African-American women deal with PPD on their own, they often rely on their faith, keep secrets about changes in feelings and behaviors, and try to uphold the image of being strong (Amankwaa 2003). If there is a need for outside help, they tend to rely on treatment delivered in a religious setting (O'Mahen and Flynn 2008) and informal support networks, such family members, clergy, and friends (Scholle and Kelleher 2003; Taylor et al. 1996).

The primary aim of this pilot study was to examine the initial acceptability, feasibility, and effectiveness of the ROSE Program (Reach Out, Stand Strong: Essentials for New Moms), a brief interpersonally-based intervention, in a group of low-income, rural African-American pregnant women at risk for PPD. The ROSE Program is based on interpersonal therapy and focuses on enhancing social support, familial communication, managing transitions, factors associated with perinatal depression and major depression among women across ethnic groups (Jesse 2003; Compton et al. 2005). The ROSE Program has demonstrated efficacy in reducing postpartum depression in pregnant women on public assistance at risk for PPD (Zlotnick et al. 2001, 2006). We examined the effectiveness of the ROSE Program in low-income, pregnant, and rural African-American women because they are historically a group of

neglected and underserved women in terms of research and clinical care. This group of women was from a small rural community that is plagued with high poverty rates, which limits access to care. Access to care was also exacerbated by a lack of public transportation. Furthermore, because of the lack of personal transportation options, poverty, isolation and limited access to medical, mental health, and other support services, they may be at risk for PPD.

## Method

### Procedure

A trained research assistant approached 52 pregnant (between 24–31 weeks' gestation) African-American women on public assistance (as they waited for services in patient rooms at a hospital-affiliated prenatal clinic) in the Mississippi Delta. Of the 52 women approached, two refused to participate and ten were minors. Forty women consented to participate in the study. After providing written informed consent, women completed a demographic form and the Cooper Survey Questionnaire (CSQ) (Cooper et al. 1996). The Cooper Risk Survey (17 items) was developed and validated as a predictive index for postpartum depression. Women who obtained a score of 27 or more on the CSQ, the recommended empirically derived cut-off score for high-risk status for postpartum depression (Cooper et al. 1996), were included in the study. Women who met risk criteria for at-risk for postpartum depression ( $n=38$ ) were assessed for exclusion criteria of a current substance use disorder or current major depressive disorder as determined by the relevant modules of the Structured Clinical Interview for DSM-IV Disorders-Revised, Non-Patient Version (SCID-R, NR-V) (First et al. 1996). None of these 38 women met these exclusion criteria or reported receiving mental health treatment in the last month. Two (5.26%) of the 38 women dropped out of the study prior to their SCID assessment.

Women who met criteria for the study (a Cooper score of 27 or above and no current substance use disorder or major depressive disorder) ( $n=36$ ) were randomly assigned to receive the ROSE Program ( $n=19$ ) or treatment-as-usual (TAU) ( $n=17$ ). All participants continued to receive the standard medical attention and medical treatment provided to all patients attending the prenatal clinic. The women assigned to the control condition, TAU, received care-as-usual along with the usual educational pamphlets that are distributed to all prenatal clinic patients. The ROSE Program (Reach Out, Stand Strong: Essentials for New Moms) comprised of four 90-min weekly group sessions and a 50-min individual booster session 2 weeks after delivery. Briefly, the group sessions were as follows: Session

One—a rationale for the program, review of the course outline, ground rules for the group, and signs and symptoms of “baby blues” and postpartum depression; Session Two—stress management skills, managing role transitions with an emphasis on transition to motherhood, and development of a support system; Session Three—identifying types of interpersonal conflicts, especially once the baby is born and techniques for resolving interpersonal conflicts; Session Four—learning skills for resolving interpersonal conflicts, setting goals, and reviewing the main themes of the intervention. Handouts and session-related homework assignments were provided for each session. To facilitate readability, all materials were written in simple and clear language. Participants in the intervention were asked questions about their perceptions of the intervention. This information will be used to refine the intervention to ensure that it will be tailored to the specific needs of rural African-American women.

An individual “booster” session was administered soon after delivery, and was intended to allow women with some depressive symptoms to reach further improvement and those with minimal or no symptoms to maintain their healthy status within the identified period of risk for postpartum depression. The booster sessions were arranged by brief telephone contacts, and each session was administered during a home visit by one of the therapists. The focus of the booster session was reinforcement of skills learned from the group sessions and interpersonal difficulties identified by the participant since the birth of the new baby. Two therapists (in the community from which study subjects were recruited) conducted the group and individual sessions. One therapist had a Ph.D. in counseling and the other therapist had a M.Ed. in counseling.

Both therapists were trained to deliver the ROSE Program according to the dictates of the manual for the intervention. Prior to the study, the therapists and research assistant read the ROSE Program manual. The therapists and research assistant attended 30 h of training which included review of the treatment manual, videotaped presentations, didactic lectures, and role play. Throughout the treatment phase, the therapists received consistent monitoring for adherence to the treatment manuals. Therapists were also required to audiotape sessions for supervision purposes.

### Measurements

The Edinburgh Postnatal Depression Scale (EPDS a ten-item self-report scale) was used to assess degree of depressive symptoms. The EPDS has been used frequently as an outcome measure of PPD treatment and preventive interventions for PPD (Cox and Holden 2003). It has both depression and anxiety subscales, focuses on psychic symptoms and depression, and is sensitive to intervention response. The EPDS has a maximum score of 30, and a

score of 10 or more may indicate possible depression of varying severity. The EPDS was administered prior to randomization, 4 weeks post-intake, 2–3 weeks after delivery, and 3 months postpartum. The therapists who administered the EPDS were not blind to treatment conditions.

Postpartum adjustment was assessed at intake with the Social-Adjustment Scale Self-Report Questionnaire (SAS-SR), a widely and successfully used measure of adjustment in work, social and leisure activities, and social support from family and friends (Weissman and Bothwell 1976). The SAS-SR investigates six role areas, which include work (paid and unpaid), relationships with extended family, role as a marital partner, role as a parent, social and legal activities, and role within the family unit. It requires respondents to rate 54 items on a five-point scale, with higher scores indicating more impairment. An overall adjustment score is obtained. The SAS-SR was administered prior to randomization and 4 weeks post-intake.

For all postpartum assessments, the Postpartum Adjustment Questionnaire (PPAQ) (O’Hara et al. 1992), which is a 61-item questionnaire designed to assess social role adjustment of women during the postpartum period, was used. It is modeled after the SAS-SR’s focus on role areas; however, it is more specific to postpartum issues than the SAS-SR. The PPAQ yields scores in all role areas as well as a total score. The PPAQ was administered 2–3 weeks after delivery and 3 months after delivery.

In addition, parenting stress was measured by the Parenting Stress Index (PSI) 2–3 weeks after delivery and 3 months after delivery (Abidin 1992). The PSI is a parent self-report 101-item questionnaire. It is designed to provide early identification of parenting and family characteristics that fail to promote normal development and functioning in children. The PSI is also designed to identify parents at risk for dysfunctional parenting.

## Results

### Socio-demographic and clinical characteristics

Of the 36 participants who were randomized, 30 (83.8%) were single/ never married; five (13.9%) were married only once; and one (2.8%) was separated. All of the participants were African-American (100%), and the participants’ mean age was 23.4 years (SD=4.98). Over a third of the participants were unemployed ( $n=13$ ). Fifteen (41.7%) were high school graduates, and six (16.7%) were employed full-time. Seventeen (47.2%) had a family income of less than \$10,000 per year. Fourteen (38.9%) already had at least one child living at home, and thirteen (36.1%) had one prior pregnancy. All 36 (100%) of the participants received Medicaid; 35 (97.2%) received cash assistance; and 20

(55.6%) received food stamps. The mean score on the screening index was 34.5 (SD=6.56). None of the participants reported previous depressive episodes. Table 1 shows the demographic and clinical characteristics of the study participants by group. Chi-square and independent *t*-tests showed there were no significant differences in demographics between the two conditions. There were also no significant differences between the two groups on intake variables.

#### Participants' expressed satisfaction and willingness to accept intervention

There was no formal measure of participant satisfaction. However, participants shared their satisfaction through anecdotal feedback. In addition, we explored the acceptability of the intervention from observations during the sessions and anecdotal feedback from the study participants.

When asked about the usefulness of the intervention, participants verbalized many positive comments about the usefulness of the tools learned during the session. For example, many of the participants stated that the skills learned: (a) assisted them in improving communications with family members, (b) improved their awareness of the signs and symptoms of postpartum depression, (c) enabled them to ask for assistance from family members, (d)

assisted them with goal setting, and (e) assisted them with resolving conflicts.

Throughout the sessions, study participants offered a consistent suggestion regarding length and number of sessions. Study participants verbalized a desire to have more sessions and longer periods of time per session. Also during the sessions, the therapists noted ways in which the study participants worked together within sessions. Through observation, the therapists found that the group members worked well together and seemed to strive to demonstrate their personal benefits of the sessions.

The structure of each session demanded a commitment to practice the skills under discussion. The study participants were willing to do this. This seemed to be consistent with their observed attentiveness and motivation to learn. The study participants stated that the intervention should have been available to all pregnant women, not just those in this study.

#### Attrition

Of the five intervention sessions, the mean number of sessions attended was 4.58 (SD=4.95), and the mode was 5.00. One of the women in the TAU condition dropped out of the study before the postpartum assessment because she moved away.

#### Burden of getting to the intervention site

All of the study participants who received the intervention faced obstacles getting transportation to sessions. We anticipated transportation being an issue considering there was no public transportation service in the area. However, we did not anticipate the substantial effort the study participants would make to get to the intervention site.

#### Outcome analyses

A repeated-measures analysis of variance found no significant differences between the two conditions in scores on the EPDS at intake, 4 weeks post-intake (during pregnancy), 2 weeks after delivery, and 3 months postpartum. Likewise, there were no significant differences on the PSI 2–3 weeks after delivery and 3 months after delivery ( $F(1, 29) = 2.05, p = 0.163$ ). A repeated-measures analysis of variance did not reveal a significant difference between level of social adjustment at initial assessment and 4 weeks after initial assessment ( $F(1, 34) = 0.329, p = 0.570$ ). However, a repeated-measures analysis of variance revealed a significant difference between postpartum adjustment 2–3 weeks after delivery and postpartum adjustment 3 months after delivery in favor of the ROSE Program condition,  $F(1, 25) = 5.43, p = 0.028$  (Table 2). Separate ANOVAs were conducted on each post-treatment assessment.

**Table 1** Demographics and clinical characteristics of study participants

	ROSE Program group	TAU group
Age, year	21.95±2.91	25.11±6.26
Working, % no	41.2	29.4
Breastfeeding, % no	100.0	100.0
Single Never Married, % no	94.7	72.2
Education, % yes		
High school graduate	42.1	41.2
College graduate	5.3	5.9
Had taken medicine for mental health, % no	100.0	100.0
Had seen therapist/counselor, % no	100.0	100.0
Number of children living at home, % none	15.3	17.6
Public assistance being received		
AFDC, % yes	100.0	94.1
Food Stamps, % yes	42.1	47.1
Medicaid, % yes	100.0	100.0
Child Care, % yes	94.7	94.1
General public assistance, % yes	100.0	94.1
Enrolled in job training/educational classes, % yes	100.0	94.1

ROSE Reach Out, Stand Strong: Essentials for New Moms (intervention condition), TAU treatment as usual condition



**Table 2** Postpartum adjustment outcomes

Outcome Variable	Mean $\pm$ SD	
	IC group N=14	TAU group N=13
2–3-weeks after delivery	1.97 $\pm$ .13	1.92 $\pm$ .11
3 months after delivery	1.91 $\pm$ .09	2.03 $\pm$ .17

Assessed using the Postpartum Adjustment Questionnaire  
 IC intervention condition (the ROSE Program), TAU treatment as usual condition

A within-group design was used to explore changes in the ROSE Program group across time. A significant change in level of depressive symptoms across time was observed for the ROSE Program group,  $F(3, 39)=4.44, p<0.009, d=0.26$ . Prior to treatment intervention, average depression was 13.00, however, six persons (33.3%) reported a depression of 10.00, 11.1% ( $n=2$ ) displayed 11.00, 13.00, and 15.00, 16.7% ( $n=3$ ) displayed a depression of 14.00, and 5.6% ( $n=1$ ) scored 17.00, 19.00, and 23.00, respectively. At the 3-months after delivery follow-up, depression had dropped to  $M=10.42, SD=1.60$ . Thus, depression dropped after the treatment. There were no significant differences across time for the TAU group.

There were no significant differences in levels of parenting stress across time for the ROSE Program group ( $F(1, 16)=3.49, p=0.08$ ) or the TAU group ( $F(1, 13)=4.01, p=0.06$ ). Likewise, no within group differences were found for social adjustment for the ROSE Program group or the TAU group,  $F(1, 18)=0.58, p=0.45$  and  $F(1, 16)=1.29, p=0.27$ , respectively.

#### Initial effectiveness of intervention

Despite the fact that the ROSE Program was intended to be a preventive intervention for PPD, no significant between-group differences were obtained. Failure to find significance might be attributed to not having equal groups at the onset of treatment, a natural decrease in depression, or contamination of the treatment-as-usual group. However, the current study enabled researchers to deliver the prevention intervention in such a way that a group of low-income, rural African-American pregnant women gained knowledge and skills necessary for reducing the likelihood of a depressive episode during the postpartum period.

#### Discussion

This study demonstrated the acceptability of the ROSE Program to our target population, pregnant, low-income, rural African-American women. Very few women refused

to participate in the study and there was nearly full attendance at all sessions of the ROSE Program. Retention in the study was very high. The study also demonstrated feasibility to conducting a preventive intervention study with rural pregnant African-American women.

The study found that the ROSE Program compared to the TAU condition did not significantly reduce depressive symptoms nor decrease parental stress at 3 months postpartum. The finding that there were no significant differences between the ROSE Program and TAU conditions on level of depressive symptoms at 3 months postpartum is consistent with other studies that have examined the impact of a preventive intervention on postpartum depressive symptoms (Brugha et al. 2000; Marks et al. 2003), including another study on the ROSE Program (Zlotnick et al. 2006). Unlike the current study, the other study on the efficacy of the ROSE Program utilized a longitudinal measure of the diagnosis of PPD. The current study's use of a cross-sectional instrument that measures depressive symptoms in the past week would not have detected the presence of high levels of depressive symptoms for the remaining time interval of 3 months postpartum. Since the highest rate of PPD is within the first month after delivery (Cox et al. 1993; Kumar and Robson 1984), future studies with this population should include a more comprehensive assessment of this postpartum period. Another possibility for the lack of findings is that, unlike the other studies of the ROSE Program, none of the women in the present study reported a history of depression, which increases the risk for PPD (Beck 2001; Da Costa et al. 2000). Also, our sample of rural low-income African-American women may have underreported postpartum depressive symptoms because individuals from rural communities tend to stigmatize mental illness (Pulice et al. 1995), and many African-American mothers are reluctant to expose any frailty (Amankwaa 2003). It was encouraging that this study found that women who participated in the ROSE Program reported improvement in their depressive symptoms over time whereas women in the TAU group did not evidence such shifts in their depressive symptoms. Finally, we may not have found significant differences between the two groups because our sample size was small, and therefore had limited power to detect group differences.

The present study did find that the women who participated in the ROSE Program reported significantly better postpartum adjustment at 3 months postpartum than the women who were in the TAU condition. The differences in social adjustment between the two conditions was not unexpected given the ROSE Program specifically targets social adjustment and role transition. This finding is clinically significant in that poor postpartum adjustment has been associated with greater depressive symptomatology (Harwood et al. 2007).

Although our study had many strengths, including its focus on an underserved sample of low-income at-risk rural African-American women, it also had limitations. The present study assessed only degree of depressive symptoms at 3 months postpartum as opposed to the presence of PPD. Thus, the impact of the intervention in reducing cases of PPD within the 3-month postpartum period and on improving the clinical status of the participants after the 3-month postpartum period remains unknown. Additionally, the study focused on low-income women in the rural South and results may not generalize to low-income women in other regions. Unlike the study conducted by El-Mohandes and colleagues (2008), which evaluated the efficacy of an integrated multiple risk intervention delivered during pregnancy to African-American women to improve postpartum outcomes (including reducing the risk of depression), the present study did not adopt an integrated approach. However, both studies confirm the need to implement interventions addressing important factors during pregnancy. Likewise, both studies confirm the efficacy of delivering interventions to African-American women during the perinatal period.

Notwithstanding its limitations, the present study adds to the limited body of knowledge for PPD in rural, low-income rural African-American women. Given that this population is often underserved, these findings confirm the willingness of a high-risk group of rural, low-income African-American pregnant women to participate in the intervention.

Because the ROSE Program is still in the treatment development stage, the findings of this study offer insight into the continued development of this preventive intervention. More tailoring of the intervention for a group of low-income, rural African-American women at risk for PPD may be necessary. This tailoring should include adapting the ROSE Program to make the intervention more culturally sensitive to the African-American population. Additionally, future research is needed to determine whether additional sessions and larger sample sizes will improve outcomes with this population. Nonetheless, this study represents an important step in developing an acceptable and useful intervention for this population.

## References

- Abidin RR (1992) Parenting Stress Index. Psychological Assessment Resources, Inc, Odessa, FL
- Alfonso DD, De AK, Horowitz JA, Mayberry LJ (2000) An international study exploring levels of postpartum depressive symptomatology. *J Psychosom R* 49:207–216
- Amankwaa LC (2003) Postpartum depression among African-American women. *Issues Ment Health Nurs* 24:297–316
- Beck C (1998) A checklist to identify women at risk for developing postpartum depression. *J Obstet Gynecol Neonatal Nurs* 27:39–46
- Beck CT (2001) Predictors of postpartum depression. *Nurs Res* 50:275–285
- Beck C, Gable R (2001) Comparative analysis of performance of the postpartum depression screening scale with two other instruments. *Nurs Res* 50:242–249
- Belle D (1990) Poverty and women's mental health. *Am Psychol* 45:385–389
- Broman CL (1996) Coping with personal problems. In: Neighbors HW, Jackson JS (eds) *Mental health in Black America*. Sage, Thousand Oaks, CA, pp 117–129
- Brown S, Lumley J (2000) Physical health problems after childbirth and maternal depression at six to seven months postpartum. *Br J Obstet Gynecol* 107:1194–1201
- Brugha TS, Wheatley S, Taub NA, Culverwell A, Friedman T, Kinwan P, Jones DR, Shapiro DA (2000) Pragmatic randomized trial of antenatal intervention to prevent post-natal depression by reducing psychosocial risk factors. *Psychol Med* 30:1273–1281
- Chung EK, McCollum KF, Elo IT, Lee HJ, Culhane JF (2004) Maternal depressive symptoms and infant health practices among low-income women. *Pediatrics* 113:523–529
- Cogill SR, Caplan HL, Alexandra H, Robson KM, Kumar R (1986) Impact of maternal postnatal depression on cognitive development of young children. *BMJ (Clin Res Ed)* 292:1165–1167
- Compton MT, Thompson NJ, Kaslow NJ (2005) Social environment factors associated with suicide attempt among low-income African Americans: role of family relationships and social support. *Soc Psychiatry Psychiatr Epidemiol* 40:175–185
- Cooper PJ, Murray L, Hooper R, West A (1996) The development and validation of a predictive index for postpartum depression. *Psychol Med* 26:628–634
- Cox JL, Holden J (2003) Perinatal mental health: a guide to the Edinburgh Postnatal Depression Scale (EPDS). Gaskell, London
- Cox JL, Holden JM, Sagovsky R (1987) Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 150:782–786
- Cox JL, Murray D, Chapman G (1993) A controlled study of the onset, duration and prevalence of postnatal depression. *Br J Psychiatry* 16:27–31
- Da Costa D, Larouche J, Drista M, Brender W (2000) Psychosocial correlates of prepartum and postpartum depressed mood. *J Affect Disord* 59:31–40
- El-Mohandes AAE, Kiely M, Joseph JG, Subramanian S, Johnson AJ, Blake SM, Gantz MG, El-Khorazaty N (2008) An intervention to improve postpartum outcomes in African-American mothers. *Obstet Gynecol* 112:611–620
- Evans J, Herron J, Francomb H, Oke S, Golding J (2001) Cohort study of depressed mood during pregnancy and after childbirth. *BMJ* 323:257–260
- First MB, Spitzer RL, Gibbon M, Williams JB (1996) Structured Clinical Interview for DSM-IV Axis I Disorders—Non-patient Edition (SCID-I/NP). New York State Psychiatric Institute, Biometrics Research, New York
- Goodman SH, Gotlib IH (1999) Risk for psychopathology in the children of depressed mothers: a developmental model for understanding mechanisms of transmission. *Psychol Rev* 106:458–490
- Greeno CG, Anderson CM, Shear MK, Mike G (1999) Initial treatment engagement in a rural community mental health center. *Psychiatr Sev* 50:1634–1636
- Harwood K, McLean N, Durkin K (2007) First-time mothers' expectations of parenthood: what happens when optimistic expectations are not matched by later experiences? *Dev Psychol* 43:1–12
- Jesse DE (2003) Prenatal psychosocial needs: differences between a TennCare group and a privately insured group in Appalachia. *J Health Care Poor Underserved* 14:536–549

- Kumar R, Robson KM (1984) A prospective study on emotional women. *Br J Psychiatry* 144:35–47
- Logsdon MC, Birkimer JC, Usui WM (2000) The link of social support and postpartum depressive symptoms in African-American women with low incomes. *MCN Am J Matern Child Nurs* 25:262–266
- Marks MN, Siddle K, Warwick C (2003) Can we prevent postnatal depression? A randomized controlled trial to assess the effect of continuity of midwifery care on rates of postnatal depression in high-risk women. *J Matern Fetal Neonatal Med* 13:119–127
- Oates MR, Cox JL, Neema S, Asten P, Glangeaud-Freudenthal N, Figueiredo B, Gorman LL, Hacking S, Hirst E, Kammerer MH, Klier CM, Seneviratne G, Smith M, Sutter-Dallay AL, Valoriani V, Wickberg B, Yoshida K (2004) Postnatal depression across countries and cultures: A qualitative study. *Br J Psychiatry* 46 (Suppl):s10–16
- O'Hara MW, Swain AM (1996) Rates and risk for postpartum depression: a meta-analysis. *Int Rev Psychiatry* 8:37–54
- O'Hara MW, Hoffman JG, Phillips LHC, Wright EJ (1992) Adjustment in child bearing women: the Postpartum Adjustment Questionnaire. *Psychol Assess* 4:160–169
- O'Mahen HA, Flynn HA (2008) Preferences and perceived barriers to treatment for depression during the perinatal period. *J Womens Health* 17:1301–1309
- Orr ST, James SA, Burns BJ, Thompson B (1989) Chronic stressors and maternal depression: implications for prevention. *Am J Public Health* 79:1925–1926
- Perez-Stable E, Miranda J, Munoz R, Ying Y (1990) Depression in medical outpatients: underrecognition and misdiagnosis. *Arch Intern Med* 150:1083–1088
- Pulice RT, McCormick LL, Dewees M (1995) A qualitative approach to assessing the effects of system change on consumers, families, and providers. *Psychiatr Serv* 46:575–579
- Scholle SH, Kelleher K (2003) Preferences for depression advice among low-income women. *Mater Child Health J* 17:95–102
- Segre LS, Losch ME, O'Hara MW (2006) Race/ethnicity and perinatal depressed mood. *J Reprod Infant Psych* 24:99–106
- Shapiro S, Skinner EA, Kramer M, Steinwachs DM, Regier DA (1985) Measuring need for mental health services in a general population. *Med Care* 23:1033–1043
- Sue S, Fujino D, Hu L, Takeuchi D, Zane N (1991) Community mental health services for ethnic minority group: A test of the cultural responsiveness hypothesis. *J Consult Clin Psychol* 59:5330–5540
- Swartz MS, Wagner HR, Swanson JW, Burns BJ, George LK, Padgett DK (1998) Administrative update: utilization of services. I. Comparing use of public and private mental health services: the enduring barriers of race and age. *Community Ment Health J* 34:133–144
- Taylor RJ, Chatters LM (1991) Religious life. In: Jackson JS (ed) *Life in Black America*. Sage, Thousand Oaks, CA, pp 105–123
- Taylor RJ, Hardison CB, Chatters LM (1996) Kin and non-kin as sources of informal assistance. In: Neighbors HW, Jackson JS (eds) *Mental health in Black America*. Sage, Newbury Park, CA, pp 130–145
- Templeton L, Velleman R, Persuad A, Milner P (2003) The experiences of postnatal depression in women from Black and minority ethnic communities in Wilshire, UK. *Ethn Health* 8:207–221
- Weissman MM, Bothwell S (1976) Assessment of social adjustment by patient self-report. *Arch Gen Psychiatry* 33:1111–1115
- Wisner KL, Chambers C, Sit DK (2006) Postpartum depression. *JAMA* 296:2618
- Zayas LH, Cunningham M, McKee MD, Jankowski KRB (2002) Depression and negative life events among pregnant African-American and Hispanic women. *Womens Health Issues* 12:16–22
- Zlotnick C, Johnson SL, Miller IW, Pearlstein T, Howard M (2001) Postpartum depression in women receiving public assistance: pilot study of an interpersonal-therapy oriented group intervention. *Am J Psychiatry* 158:638–640
- Zlotnick C, Miller IW, Pearlstein T, Howard M, Sweeney P (2006) A preventive intervention for pregnant women on public assistance at risk for postpartum depression. *Am J Psychiatry* 163:1443–1445