



Seeking social support and postpartum depression: A pilot retrospective study of perceived changes

Peggy O'Neill^{a,*}, Annette Cycon^{b,1}, Liz Friedman^{b,1}

^aSmith College School for Social Work, Lilly Hall Northampton, MA 01063, United States

^bMotherWoman, Inc, 220 Russell Road, Hadley, MA 01035, United States

ARTICLE INFO

Article history:

Received 18 July 2018

Revised 24 December 2018

Accepted 8 January 2019

Keywords:

Postpartum depression
Social support
Group peer support
Perinatal mental health

ABSTRACT

Postpartum depression prevalence rates reach as high as 25% (Gavin, 2006). Negative effects on mothers and children are well established. Although low social support is an important predictor of perinatal depression (Leahy-Warren, McCarthy, and Corcoran, 2012), the value of peer group support remains equivocal and is examined in this pilot study.

Objective: Evaluations of interventions that focus on social support in real world settings for women experiencing PPD are lacking. In this pilot study we asked how perceived changes over time in three types of social support (significant other, family, and friends) in participants who sought help and attended postpartum peer support groups related to perceived changes in depression over the same time period.

Design: Retrospective design and Internet survey.

Setting: On-line survey referring to in-person participation in peer support groups for postpartum women.

Participants: Fifty-seven women who attended postpartum peer support groups.

Methods: We investigated how self-reported changes over time in three types of social support (significant other, family, and friends) relate to perceived changes in depression over the same period. Parametric statistical analyses using SPSS 20.0 included Cronbach's alpha tests, paired sample t-tests and Pearson correlational analyses.

Findings: Significant improvement was reported. Pre-post change scores of perceived social support from friends and significant other were significantly correlated to pre-post depression change scores suggesting that social support contributed to a reduction in depression in this sample of postpartum women.

Implications for practice: Seeking social support may contribute to a reduction in depression, particularly as it relates to perceived support from friends and significant other. Other variables not measured are discussed.

© 2019 Elsevier Ltd. All rights reserved.

Introduction

Depression is a mental health condition with a 20% lifetime prevalence rate for the general population in the United States (Kessler and Bromet 2013). Prevalence rates are consistently two times higher for women than men across all categories of depressive disorders in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2002; Kessler, 2003; Pratt and Brody, 2008) and first onset peaks for women during childbearing years (20–40 years) (Marcus and Hering-

hausen, 2009). Prevalence rates of perinatal depression range from 5–25% across the general population of mothers in the United States (Gavin et al., 2006; O'Hara, 2009). It is estimated that 41% of nine-month old infants in the US have a mother living with some form of depression; the rate increases to 55% for those living under the poverty line (Vericker et al., 2010).

Why studying depression and perinatal women is important

The experience of depression among mothers may relate to long-term negative effects of depression for both the mother and child. Indeed, a comprehensive review of studies addressing the effects of postpartum depression (PPD) on early interactions, parenting, and safety practices over the last decade, reported less sensitivity to infants' needs by mothers who are depressed and lower

* Corresponding author.

E-mail addresses: poneill@smith.edu (P. O'Neill),

Annette@groupeersupport.org (A. Cycon), Liz@groupeersupport.org (L. Friedman).

¹ Permanent Address: GPS Group Peer Support.

responsiveness of infants to depressed mothers (Field, 2010; Field et al., 2010; Stein et al., 2014). Shorter duration of breastfeeding was reported for mothers who are depressed (McLearn et al., 2006) aligning with findings of Haga et al. (2012) whose research indicated a significant relationship between low levels of self-efficacy in breastfeeding and higher rates of depression at 1.5 and 3 months postpartum. Long-term negative outcomes of maternal depression have been reported on the physical and psychosocial health of the child (McCoy et al., 2006; Silverstein, et al., 2017).

Need for social support

Social support, perceived and real, is an important factor for sustaining mental health across the lifespan. The source of support has been determined to be an important aspect of perceived social support (Zimet et al., 1990; Hopkins and Campbell, 2008; Roohafza et al., 2014). Relevant to motherhood, perceived social support is a predictor of PPD (Horowitz et al., 2005; Negron et al., 2013; O'Hara, 2009), and can provide both preventative and protective benefits (Xie et al., 2009; Milgrom et al., 2008). Perceived support from a significant other (Misri et al., 2000; Dennis and Letourneau, 2007; Gremigni et al., 2011), and the perceived quality of their relationship (Misri et al., 2000; Beck, 2001; Houts et al., 2008) were found to be protective factors for PPD. Partner support was predictive of PPD at 8 weeks (Dennis and Letourneau, 2007; Stapleton et al., 2012) and perceived support from intimate partner mid-pregnancy showed lower levels of emotional distress 6–8 weeks postpartum (Stapleton et al., 2012). Webster et al. (2011) found significant relationships between levels of social support, depression and health quality of life indicators.

Across studies, researchers have reported the positive effects of the availability and level of family support in easing the demands of the immediate (zero to eight weeks postpartum) through long-term (more than 24 weeks) postpartum period on mothers who experienced depression (Dennis, 2003; Dennis and Dowswell, 2013; Heh, 2003). Perceived support from mothers, mothers-in-law, sisters, and sisters-in-law was found to be important, though the relatives' limited knowledge of the symptoms of PPD resulted in minimization of the postpartum mother's experience of depression (Dennis and Letourneau, 2007).

While immediate support is important, another area of support to consider is a mothers' peer network. For example, in one study, peer support interventions reduced the experience of adult depression (Pfeiffer et al., 2011) and perceived social support from friends predicted lower levels of adult depression for women, though not for men (Powers et al., 2009). Perceived support from friends, particularly the expressed need for support from other women and mothers of young children (Mauthner, 2014; Mauthner, 2002; Dennis and Letourneau, 2007), was found to be significantly related to the report of reduced depression for postpartum women (Dennis, 2003; Surkan et al., 2006). Further investigation regarding the relationship between the types of perceived social support and the experience of PPD could inform social support interventions.

Potential for peer support-based intervention

Peer support for postpartum women can be provided through many types of structures, settings and delivery methods (Dennis, 2003; 2012; 2014). In her conceptual framework of social support based on a review of multiple studies, Dennis emphasized the direct effects of reducing isolation and sharing relevant information, as well as buffering the impact of stressors (Dennis, 2003). Peer support groups for women with postpartum depression were found to reduce stigma related non-disclosure among participants (Anderson, 2013) aligning with findings that indicate satisfaction with group peer support as a method of

mental health support (Prevatt et al., 2018). Although effects of social support for postpartum mothers appears promising, in a quantitative meta-analysis of psychosocial interventions, Dennis reports the role of peer support and in particular group peer support interventions for postpartum women experiencing depression remains equivocal (Dennis, 2014). This is the case despite evidence reported based on a meta-analysis that effects of peer support exceed usual care in mitigating symptoms of depression across a range of populations (Pfeiffer et al., 2011). Further research on group based peer support is needed that focuses on the experience of postpartum women who experience depression.

The current study

Evaluations of interventions that focus on social support in real world settings for women experiencing PPD are lacking. In this pilot study we asked how perceived changes over time in three types of social support (significant other, family, and friends) in participants who sought help and attended (NAME) postpartum peer support groups related to perceived changes in depression over the same time period.

Methods

To identify a community based sample of mothers who have sought some form of social support to address postpartum emotional complications, we secured institutional review board approval from the primary author's institution, XXX and agency permissions, and collected retrospective and current data through a cross-sectional Internet survey from a sample of postpartum women who attended peer support groups at the time of the survey or in the prior five years and had indicated permission to be contacted by the community-based organization providing the peer support groups. Three email invitations to participate in the study were sent to 218 women. Small incentive gifts were offered such as special onesies or t-shirts, or a one-hour massage gift certificate. Inclusion criteria required that the participants (1) must be on community-based organization's email list, (2) have attended at least one peer support group session, (3) have access to a computer with relative privacy to take the survey, (4) read English, and (5) not be pregnant at the time of the survey. There was no age limit. Participants gained access to the survey only upon completion of consent process in which they were informed of the purpose of the study, time required to complete the survey, possible risks and benefits, who the investigator was and how to contact with any questions or for more information. To maintain anonymity, all data were password protected, and separated from IP addresses. Only members of the research team had access to the data having signed a confidentiality agreement. The survey was closed (allowing access only post-consent) and administered using Survey Monkey. No other requirement to complete any of the items was applied using server-side techniques. Duplication was checked using comparative methods, as it was a small sample. No duplicates were found.

Peer support groups

The sample was comprised of mothers who attended peer support groups offered by a community-based organization based in Southwestern New England whose mission was to serve the needs of mothers and families, to support and empower mothers "to create personal and social change by building community safety nets, impacting family policy and promoting the leadership and resilience of mothers" (NAME, 2017).

This organization's longest standing effort, since 1999, was to offer peer support groups for postpartum women for no cost to

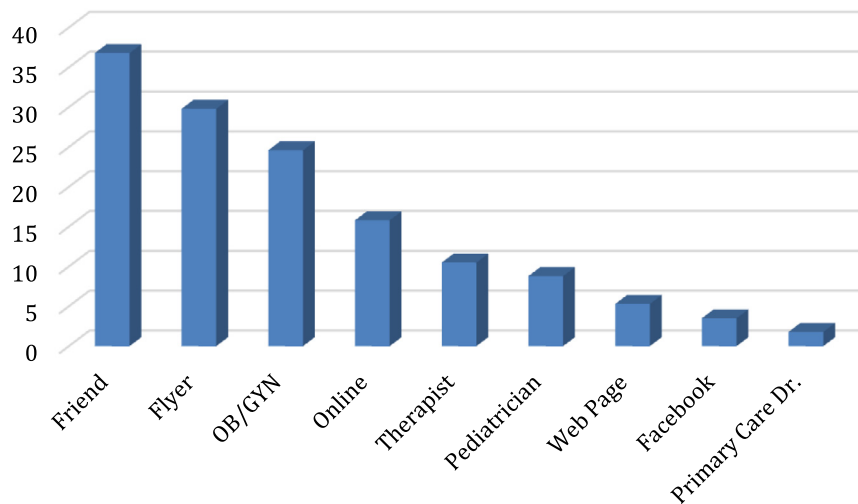


Fig. 1. Referral Source (percentages). Source through which the participant discovered the group by percent.

participants. Trained mental health professional and peer facilitators led the peer support groups. Facilitators attended a required three-day training (21 hours) provided by the creators of the specific peer group model. The model integrated culturally competent and sensitive support group facilitation skills and Cognitive Behavior Therapy (CBT) informed methods of inquiry to encourage curiosity and reduce negative thinking and judgment. At the core of the peer group model was a commitment to create safety for women to share their “authentic experiences of motherhood,” learn about group dynamics, address “cultural messages and myths about motherhood, apply methods to support resilience and cultivate personal power, and link socio-political factors to maternal experience.” (NAME, 2017). Facilitators were encouraged to note external social forces and the attendant messages (e.g., This is the happiest time of your life; Every mother falls in love with her baby; It’s just baby blues, etc.) that impact new mothers’ expectations of themselves, experiences with multiple systems of care, family members, among other factors.

Sample

The sample comprised 57 women (completion rate was 26.2%) who met inclusion criteria and completed the survey. Unfortunately this is a low response rate not uncommon for survey research (Dillman et al., 2009) that may have been related to the length of the survey, Internet access in remote areas, response bias, among other unknown factors. The participants were based in southwestern New England and their age at the time of survey completion ranged from 20 to 53 years of age with a mean age of 35.67 years ($SD=5.79$ years). Participants started attending the peer support groups from ages 15 to 50 years with a mean age of 33.44 years ($SD=6.1$ years). Of the 57 women, 18 (31.6%) were still attending the peer support groups at the time of the survey, posing a risk of bias, and 39 (68.4%) were no longer attending the peer support groups. Of the 57 participants, 54 (95%) responded to the question regarding the number of months they attended the peer support group, five percent did not respond. On average, participants attended the peer support groups for 8.44 months ($SD=8.75$) with a median of 6.0 months. Fig. 1 illustrates how the survey respondents indicated they heard about (NAME) peer support groups. With close to a third of the sample referred by a friend, the sample may reflect some bias for those who have some social support. It is also possible that referral from a friend may have undermined the stigma associated with postpartum depres-

sion and seeking support, as noted in prior research (Mauthner, 2002; Anderson, 2013).

Women in the sample had between one and five children with a mean of 1.54 children ($SD=0.78$ children). The average number of people in the women’s households was 3.47 ($SD=0.87$) and the average approximate household income ranged from \$50,000 to \$74,999. Respondents indicated that at the time of survey completion they were typically employed for pay between nine and 20 hours per week.

Instruments

Beyond demographic questions, multiple-choice questions were developed collaboratively with the staff and researchers to inquire about specific personal and professional supports used at the time of attendance to the peer support group. Additionally, the survey inquired whether participants had a diagnosis of depression or postpartum depression from a qualified professional prior to attending the peer support groups. Participants completed the survey at one time reflecting on the past retrospectively and then currently.

Zimet et al. developed and validated the Multidimensional Scale of Perceived Social Support (MSPSS) through which family, friends and significant other emerged as distinct factors in a study that included 265 pregnant women among other groups (Zimet et al., 1990). Participants rated responses on 12 Likert scales from 1 (very strongly disagree) to 7 (very strongly agree). Higher total MSPSS scores indicate greater levels of global perceived support, while three discrete subscales exist within the scale. Across seven different studies and populations, the factor solutions were replicated and inter-item reliability was strong with Chronbach’s α for the total scale ranging from 0.88 to 0.92 and each of the three factors: Significant Other (0.83 to 0.98), Family (0.81 to 0.93), and Friends (0.85 to 0.94) (Zimet et al., 1988; Zimet et al., 1990; Osman 2014). In the current study, inter-item reliability was quite sound for this measure with Chronbach’s α for the total score = 0.90 pre-test, $\alpha = 0.94$ for the post-test. For the subscales Chronbach’s $\alpha = 0.91$ pre-test and 0.96 post-test for family; Chronbach’s $\alpha = 0.86$ pre-test and 0.91 post-test for friends; and Chronbach’s $\alpha = 0.90$ for pre-test and 0.95 for the post-test for significant other.

Depression was measured using the Patient Health Questionnaire-9 (PHQ-9), a nine item self-administered questionnaire based on the diagnostic criteria for depressive disorders in the DSM-IV (Kroenke et al., 2001a). Scores establish

Table 1
Pre, Post and Pre-Post Change Scores.

	Pre (SD)	Post (SD)	Change (SD)	<i>t</i>
Depression	11.43 (6.69)	5.07 (4.54)	- 6.36 (6.68)	6.98**
Sig Other SS	5.30(1.34)	5.80 (1.24)	.50 (0.94)	3.89**
Family SS	4.45(1.45)	4.93 (1.46)	.48 (1.04)	3.37*
Friends SS	4.98 (1.05)	5.70 (0.97)	.72 (0.86)	6.00**
Total	4.91 (1.01)	5.70 (1.00)	.60 (0.76)	5.65**

Participants scores at pre, post, and the pre-post change for depression (based on the PHQ-9), significant other social support (SS), family SS, and friends' SS (based on the MSPSS).

* $p < .001$,

** $p < .001$

provisional diagnosis as well as measure of severity of depression (Kroenke et al., 2001b). Total scores of 4 or less indicate no presence of depression; 5–9 signifies mild severity of depression; 10–14 indicate moderate depression; scores 15–19 indicate moderately severe depression; and scores 20–27 indicate severe depression. The PHQ-9 has been found to be a valid, reliable and sensitive measure of depression in a broad range of studies including those with Obstetric/Gynecological patients (Spitzer et al., 2000). The PHQ-9 demonstrated strength across multiple studies in measuring sensitivity to change in severity of depression (Kroenke et al., 2010). In the current study inter-item reliability was found for this measure with Chronbach's $\alpha = 0.85$ (pre test) and $\alpha = 0.86$ (post test).

Results

No missing data procedures were used in this analysis. Thirty-one percent of the women in this sample retrospectively reported having a diagnosis of depression or PPD from a physician, psychologist or other mental health professional ($n = 18$), 47.3% reported that they did not have a diagnosis ($n = 27$), and 21.1% report suspecting that they had depression ($n = 12$). A current diagnosis of depression or PPD given by a physician, psychologist or other mental health professional was reported by 28.1% of the women ($n = 16$), 59.6% reported not having a diagnosis ($n = 34$), and 12.3% reported suspecting that they had depression at the time of the survey ($n = 7$).

The women were also asked about other supports they were using at the time of participation in the peer support groups. Close to half (47.4%) of the women reported being in therapy ($n = 27$) while 47.4% indicated that they were not using any additional supports ($n = 27$). A third of the women (29.8%) reported taking medication ($n = 17$), and 3.5% were attending 12-Step Recovery groups ($n = 2$). A total of 47.4% reported seeking one of these forms of support ($n = 27$).

The pre-test mean score on the PHQ-9 indicated a moderate level of depression for this sample of postpartum mothers based on the participants' retrospective reflection. Depression decreased significantly (55.63%) from a moderate to low mild range and perceived social support increased significantly for each of the three types of social support over time (Table 1).

We found significant relationships between changes in depression and perceived social support from friends and significant other presenting moderate to high correlations (Table 2).

Discussion

The postpartum women in our sample reported moderate depression at the start of the peer support groups. Based on retrospective reporting by participants, depression scores changed significantly between the start of the groups and the administration of the survey showing a decrease in depression scores to an av-

erage rate of mild depression at the time of the survey. Women also reported an increase in social support across the same time period and the change scores for social support from family, significant other and friends were significantly related to the change in depression scores. In surveying women who sought help for postpartum emotional complications, some of what we found was expected. A majority of participants in this study were using other resources. The peer support group model encouraged connections to additional resources to support the mother and baby/child. Although it is not possible to ascertain the influence of the groups on these behaviors of the participants, it was a welcome finding that participants were otherwise connected to therapeutic services.

The rate of depression on pre-test indicated a moderate level of depression among postpartum women participants and placed this sample on pre-test at the 97.7 (25–34 years) to 97.0 (35–44 years) percentile rate when compared to normative data of the general population of women (Kocalevent et al., 2013). The rate of depression on post-test was mild placing this sample in relation to normative data of the general population of women at 83.5 (25–34 years) and 81.1 (35–44 years).

The perceived levels of support among the sample of pregnant women studied by Zimet et al. were somewhat higher than those of the study currently being reported (Zimet et al., 1990). The sample of postpartum women in the current study may have had a different experience of perceived support than prenatal women possibly reflecting the transition to having a newborn and infant. The rates of depression were not assessed or reported by Zimet et al., (1990). It may be important to note that these studies, including the current study, did not assess for forms of social support that could be perceived as negative (Anderson, 2013) which is an area for further exploration.

Consistent with prior literature, the rate of depression among postpartum women in this sample decreased over time, and the level of perceived support from significant other (Dennis and Letourneau, 2007; Gremigni et al., 2011; Stapleton et al., 2012), family (Dennis, 2003; Heh, 2003; Dennis and Letourneau, 2007), and friends (Dennis, 2003; Surkan et al., 2006) all increased. It is quite possible that the increases in support led to or contributed to the decreases in depression. While correlational, the findings that the severity of depression decreased and were related to increased levels of social support, particularly from friends and significant other align with earlier reports in the literature that point to extant social support as negatively related to depression (Robertson et al., 2004; Horowitz et al., 2005; O'Hara, 2009; Pfeiffer et al., 2011). It is important to remember that our findings are intentionally specific to women who actively sought support through a peer support group for woman who were experiencing emotional complications postpartum. Further investigation is needed to more fully understand the role social support plays in ameliorating depression and to determine group differences among postpartum women who did and did not seek support through a peer support group.

Of interest in this study were the significant relationships between the changes in depression across time, and the perceived social support from significant other and friends. One possible inference may be that the participants experienced an increase in perceived social support from the group itself as reflected in the MSPSS friend subscale which increased fifty percent more than the other subscales. Perceived social support from a significant other or partner was found to be a protective factor for PPD (Dennis and Letourneau, 2007; Gremigni et al., 2011; Stapleton et al., 2012). The postpartum women of this sample demonstrated an increase in perceived social support from a significant other over time. It is not possible to report a direct relationship between the peer support groups and the increase in perceived social support from a significant other and the decrease in depression in this community based pilot study. Yet, questions are raised about the possibility that

Table 2
Correlations for pre-post change scores.

	Depression	Significant Other SS	Family SS	Friends SS	Total
Depression	1				
Significant Other SS	0.58**	1			
Family SS	0.15	0.24	1		
Friends SS	0.56**	0.78**	0.33*	1	
Total SS	0.48**	0.71**	0.73**	0.89**	1

Measures of correlation between participants' pre-post change for depression (based on the PHQ-9), significant other SS, family SS, and friends SS.

* = $p < .05$,

** = $p < .01$.

participation in the peer support groups somehow contributed to the improved scores on the MSPSS significant other subscale and PHQ-9. Does an increase in perceived social support from friends contribute to the increase in perceived social support from a significant other?

It is also possible that as depression decreased social support was more accessible; the capacity to engage with social support from friends, significant other and family increased with less depression. These relationships remain curious and an area for further exploration. Nonetheless, the viability of peer support models as a form of social support intervention is supported.

Implications for research

Other factors merit future research: effect of time contributing to the remittance of postpartum depression (McLearn et al., 2006), use of medications, and possible increase in regularity of sleep patterns (Insana and Montgomery-Downs, 2013), nutrition (Hogg-Kollars et al., 2011), exercise and personal care, among other physical and hormonal postpartum changes. Research designs that would separate women into these groups, that is in groups in which they received only one or a combination of these factors, to test effectiveness of each combination, challenge ethical boundaries. The pre-post changes in social support merit more sophisticated exploration as well. Social connections become more possible as there are more out of home activities, re-connection with friends and family, and new relationships through baby related and parenting activities (Dennis and Chung-Lee, 2006; Mauthner, 2002).

The postpartum women in this sample may have acted on what they learned in the postpartum peer support groups: identified their particular needs, connected with relevant resources, engaged the paradox of self-care in the postpartum period when attending to infant needs and supporting oneself, and confronted the concerns and fears of about mental health (Sword et al., 2008; Goodman, 2009; Ko et al., 2012), not meeting societal expectations (Sword et al., 2008), or fear of judgment and reprisal (Holopainen, 2002). The postpartum peer support group model the participants in this study attended expressly educates participants about the relationships between PPD and social support from a significant other (Mauthner, 2002; Dennis and Letourneau, 2007; Gremigni et al., 2011; Stapleton et al., 2012) family (Dennis, 2003; Heh, 2003; Dennis and Letourneau, 2007), and friends (Dennis, 2003; Surkan et al., 2006). There is an emphasis on self-care behaviors across physical, emotional and social domains and on helping the woman identify the help that she needs. Further research is warranted to distinguish the contributions of these factors to the pre-post changes in depression and social support. Given the small sample size and the risk of bias in this pilot study, the results should be considered with caution.

We are in the process of examining data from longitudinal study of women who attended peer support groups and aim to further our research on peer support groups with attention to

disregarded populations of perinatal women who carry high risk, including those involved with substance use, particularly opiates.

Conclusion

In this pilot retrospective Internet survey based study of 57 women who attended postpartum peer support groups and completed the survey, pre-post change scores of perceived social support from friends and significant other were significantly correlated to pre-post depression change scores suggesting that social support contributed to a reduction in depression in this sample of postpartum women. The findings should be taken with caution given the relatively small sample size and retrospective design. The findings support the need for stronger research on group peer support for postpartum women experiencing depression.

Implications for practice

Implications for practice are potentially exciting. The group peer support model participants attended is a community-based model that can be replicated with training for mental health professionals and postpartum mothers who have come through postpartum depression and related emotional complications. The model emphasizes a stigma-free, non-judgmental, relationship oriented method that aligns with literature that suggests the need for such an approach (Holopainen, 2002; Sword et al., 2008). Perceived social support from friends and significant other were strongly related in this study, showing possible benefits across relationships. With much stronger research, one can imagine public health interventions that educate health and mental health care providers, perinatal women and the general public on the importance of seeking simply and inexpensively delivered social support.

Limitations

This pilot study was retrospective and hence reliant on the memory of the participants increasing a risk of bias. The sample was relatively small with a typical return rate. Further studies on the effects of group peer support are needed with larger sample sizes and controls for number of children, age of the respondent, socioeconomic status, partners and family, race, immigration status, and amount of time in the group. As well, phenomenological study of group peer support is needed in order to assess changes over time and directionality.

Declaration of interests

Conflict of interest

The first author and primary researcher declares no competing interests. The second and third authors of this article are the co-founders of the (NAME) peer support groups and larger grassroots organization. Each declares no competing interests. and expresses

authentic interest to rigorously evaluate the effects of peer group support for postpartum women who experience emotional complications.

Ethical approval

Approval was granted by the Smith College Institutional Review Board

Funding sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Acknowledgments

The authors are most grateful to the postpartum women who participated in the Internet survey.

References

- American Psychiatric Association, 2002. *Diagnostic and Statistical Manual of Mental Disorders*. American Psychiatric Association, Washington, DC.
- Anderson, L.N., 2013. Functions of support group communications for women with postpartum depression: how support groups silence and encourage voices of motherhood. *J. Commun. Psychol.* 41, 709–724.
- Beck, C.T., 2001. Predictors of postpartum depression. *Nurs. Res.* 50, 275–285. doi:10.1097/00006199-200109000-00004.
- Dennis, C.L., 2003. Peer support within a health care context: a concept analysis. *Int. J. Nurs. Stud.* 40, 321–332. doi:10.1016/S0020-7489(02)00092-5.
- Dennis, C.L., 2014. Psychosocial interventions for the treatment of perinatal depression. *Best Pract. Res. Clin. Obstet. Gynaecol.* 28, 97–111. doi:10.1016/j.bpobgyn.2013.08.008.
- Dennis, C.L., Chung-Lee, L., 2006. Postpartum depression help-seeking barriers and maternal treatment preferences: a qualitative systematic review. *Birth* 33, 323–331. doi:10.1111/j.1523-536X.2006.00130.x.
- Dennis, C.L., Dowswell, T., 2013. Psychosocial and psychological interventions for preventing postpartum depression. *Cochrane Database Syst. Rev.* 2, 1–206. doi:10.1002/14651858.CD001134.pub3.
- Dennis, C.L., Letourneau, N., 2007. Global and relationship-specific perceptions of support and the development of postpartum depressive symptomatology. *Social Psychiatry Psychiatr. Epidemiol.* 42, 389–395. doi:10.1007/s00127-007-0172-5.
- Dillman, D.A., Smyth, J.D., Christian, L.M., 2009. *Mail and Internet Surveys: The Tailored Design Method*, Third edition John Wiley and Sons, New York.
- Field, T., 2010. Postpartum depression effects on early interactions, parenting, and safety practices: a review. *Infant Behav. Dev.* 3, 1–6. doi:10.1016/j.infbeh.2009.10.005.
- Field, T., Diego, M., Hernandez-Reif, M., 2010. Prenatal depression effects and interventions: a review. *Infant Behav. Dev.* 33, 409–418. doi:10.1016/j.infbeh.2010.04.005.
- Gavin, N.I., Gaynes, B.N., Lohr, K.N., Meltzer-Brody, S., Gartlehner, G., Swinson, T., 2006. Perinatal depression: a systematic review of prevalence and incidence. *Obstet. Gynecol.* 106 (5 Pt 1), 1071–1083.
- Goodman, J.H., 2009. Women's attitudes, preferences, and perceived barriers to treatment for perinatal depression. *Birth* 36, 60–69. doi:10.1111/j.1523-536X.2008.00296.x.
- Gremigni, P., Mariani, L., Marracino, V., Tranquilli, A.L., Turi, A., 2011. Partner support and postpartum depressive symptoms. *J. Psychosom. Obstet. Gynecol.* 32, 135–140. doi:10.3109/0167482X.2011.589017.
- Haga, S.M., Ulleberg, P., Slinning, K., Kraft, P., Torbjorn, S.B., Staff, A., 2012. A longitudinal study of postpartum depression symptoms: multilevel growth curve analyses of emotion regulation strategies, breastfeeding self-efficacy, and social support. *Arch. Women's Mental Health* 15, 175–184. doi:10.1007/s00737-012-0274-2.
- Heh, S.S., 2003. Relationship between social support and postnatal depression. *Kaohsiung J. Med. Stud.* 19, 491–495. doi:10.1016/S1607-551X(09)70496-6.
- Hogg-Kollars, S., Mortimore, D., Snow, S., 2011. Nutrition health issues in self-reported postpartum depression. *Gastroenterol. Hepatol. Bed Bench* 4, 120–126.
- Holopainen, D., 2002. The experience of seeking help for postnatal depression. *Aust. J. Adv. Nurs.* 19, 39–44.
- Hopkins, J., Campbell, S.B., 2008. Development and validation of a scale to assess social support in the postpartum period. *Arch. Women's Mental Health* 11, 57–65. doi:10.1007/s00737-008-0212-5.
- Horowitz, J.A., Damato, E.G., Duffy, M.E., Solon, L., 2005. The relationship of maternal attributes, resources, and perceptions of postpartum experiences to depression. *Res. Nurs. Health* 28, 159–171. doi:10.1002/nur.20068.
- Houts, R.M., Barnett-Walker, K., Paley, B., Cox, M., 2008. Patterns of couple interaction during the transition to parenthood. *Pers. Relatsh.* (15) 103–122. doi:10.1111/j.1475-6811.2007.00187.x.
- Insana, S.P., Montgomery-Downs, H.E., 2013. Sleep and sleepiness among first-time postpartum parents: a field- and laboratory-based multimethod assessment. *Dev. Psychobiol.* 5, 361–372.
- Kessler, R.C., 2003. Epidemiology of women and depression. *J. Affect. Disord.* 74, 5–13. doi:10.1016/S0165-0327(02)00426-3.
- Kessler, R.C., Bromet, E.J., 2013. The epidemiology of depression across cultures. *Ann. Rev. Publ. Health* 34, 119–138. doi:10.1146/annurev-publhealth-031912-114409.
- Ko, J.Y., Farr, S.L., Dietz, P.M., Robbins, C.L., 2012. Depression and treatment among U.S. pregnant and nonpregnant women of reproductive age, 2005–2009. *J. Women's Health* 21, 830–836. doi:10.1089/jwh.2011.3466.
- Kocalevent, R.D., Hinze, A., Brähler, E., 2013. Standardization of the depression screener patient health questionnaire (PHQ-9) in the general population. *Gen. Hosp. Psychiatry* 35, 551–555.
- Kroenke, K., Spitzer, R.L., Williams, J.B., 2001a. The PHQ-9: validity of a brief depression severity measure. *J. Gen. Intern. Med.* 16, 606–613.
- Kroenke, K., Spitzer, R.L., Williams, J.B.W., 2001b. The PHQ-9. *J. Gen. Intern. Med.* 16, 606–613. doi:10.1046/j.1525-1497.2001.016009606.x.
- Kroenke, K., Spitzer, R.L., Williams, J.B.W., Löwe, B., 2010. The patient health questionnaire somatic, anxiety, and depressive symptom scales: a systematic review. *Gen. Hosp. Psychiatry* 32, 345–359. doi:10.1016/j.genhosppsych.2010.03.006.
- Marcus, S.M., Heringhausen, J.E., 2009. Depression in childbearing women: when depression complicates pregnancy. *Prim. Care. Clin. Off. Pract.* 36, 151 ix.
- Mauthner, N.S., 2002. *The Darkest Days of My life: Stories of Postpartum Depression*. Harvard University Press, Cambridge MA.
- Mauthner, N.S., 2014. Re-assessing the importance and role of the marital relationship in postnatal depression: methodological and theoretical implications. *Reprod. Infant Psychol.* 16, 157–175.
- McCoy, S.J.B., Beal, J.M., Shipman, S.B.M., Payton, M.E., Watson, G.H., 2006. Risk factors for postpartum depression: a retrospective investigation at 4-weeks postnatal and a review of the literature. *J. Am. Osteopath. Assoc.* 106, 193–198. doi:10.7556/JAOA.2006.106.4.193.
- McLearn, K.T., Minkovitz, C.S., Strobino, D.M., Marks, E., Hou, W., 2006. The timing of maternal depressive symptoms and mothers' parenting practices with young children: Implications for pediatric practice. *Pediatrics* 118, e174–e182. doi:10.1542/peds.2005-1551.
- Milgrom, J., Gemmill, A.W., Bilszta, J.L., Hayes, B., Barnett, B., Brooks, J., Ericksen, J., Ellwood, D., Buist, A., 2008. Antenatal risk factors for postnatal depression: a large prospective study. *J. Affect. Disord.* 108, 147–157. doi:10.1016/j.jad.2007.10.014.
- Misri, S., Kostaras, X., Fox, D., Kostaras, D., 2000. The impact of partner support in the treatment of postpartum depression. *Can. J. Psychiatry* 45, 554–558. doi:10.1177/070674370004500607.
- NAME.
- Negron, R., Martin, A., Almog, M., Balbierz, A., Howell, E.A., 2013. Social support during the postpartum period: mothers' views on needs, expectations, and mobilization of support. *Matern. Child Health J.* 17 (4), 616–623. doi:10.1007/s10995-012-1037-4.
- O'Hara, M.W., 2009. Postpartum depression: what we know. *J. Clin. Psychol.* 65, 1258–1269. doi:10.1002/jclp.20644.
- Osman, A., Lamis, D.A., Freudenthal, S., Gutierrez, P.M., McNaughton-Cassill, M., 2014. The multidimensional scale of perceived social support: analyses of internal reliability, measurement invariance, and correlates across gender. *J. Personal. Assess.* 96, 103–112. doi:10.1080/00223891.2013.838170.
- Pfeiffer, P.N., Heisler, M., Piette, J.D., Rogers, M.A.M., Valenstein, M., 2011. Efficacy of peer support interventions for depression: a meta-analysis. *Gen. Hosp. Psychiatry* 33, 29–36. doi:10.1016/j.genhosppsych.2010.10.002.
- Powers, A., Ressler, K.J., Bradley, R.G., 2009. The protective role of friendship on the effects of childhood abuse and depression. *Depress. Anxiety* 26, 46–53. doi:10.1002/da.20534.
- Pratt, L.A., Brody, D.J., 2008. Depression in the United States household population, 2005–2006. *NCHS Data Brief* 7, 1–8. doi:10.1037/e565102009-001.
- Prevatt, S., Lowder, E.M., Desmarais, S.L., 2018. Peer support intervention for postpartum depression: participant satisfaction and program effectiveness. *Midwifery* 64, 38–47. doi:10.1016/j.midw.2018.05.009.
- Robertson, E., Grace, S., Wallington, T., Stewart, D.E., 2004. Antenatal risk factors for postpartum depression: a synthesis of recent literature. *Gen. Hosp. Psychiatry* 26, 289–295. doi:10.1016/j.genhosppsych.2004.02.006.
- Roohafza, H.R., Afshar, H., Keshteli, A.H., Mohammadi, N., Feizi, A., Taslimi, M., Adibi, P., 2014. What's the role of perceived social support and coping styles in depression and anxiety. *J. Res. Med. Sci.: Off. J. Isfahan Univ. Med. Sci.* 19 (10), 944–949. doi:10.1002/da.20534.
- Spitzer, R.L., Williams, J.B.W., Kroenke, K., Hornyak, R., McMurray, J., 2000. Validity and utility of the PRIME-MD Patient Health Questionnaire in assessment of 3000 obstetric-gynecologic patients: the PRIME-MD Patient Health Questionnaire Obstetrics-Gynecology Study. *Am. J. Obstet. Gynecol.* 183, 759–769. doi:10.1067/mob.2000.106580.
- Silverstein, M., Diaz-Linhart, Y., Cabral, H., et al., 2017. Efficacy of a maternal depression prevention strategy in head start: a randomized clinical trial. *JAMA Psychiatry* 74 (8), 781–789. doi:10.1001/jamapsychiatry.2017.1001.
- Stapleton, L.R., Schetter, C.D., Westling, E., Rini, C., Glynn, L.M., Hobel, C.J., Sandman, C.A., 2012. Perceived partner support in pregnancy predicts lower maternal and infant distress. *J. Family Psychol.* 26, 453–463.
- Stein, A., Pearson, R.M., Goodman, S.H., Rapa, E., Rahman, A., McCallum, M., Howard, L.M., Pariante, C.M., 2014. Effects of perinatal mental disorders on the fetus and child. *Lancet* 384, 1800–1819. doi:10.1016/S0140-6736(14)61277-0.

- Surkan, P.J., Peterson, K.E., Hughes, M.D., Gottlieb, B.R., 2006. The role of social networks and support in postpartum women's depression: a multiethnic urban sample. *Matern. Child Health J.* 10, 375–383. doi:[10.1007/s10995-005-0056-9](https://doi.org/10.1007/s10995-005-0056-9).
- Sword, W., Busser, D., Ganann, R., McMillan, T., Swinton, M., 2008. Women's care-seeking experiences after referral for postpartum depression. *Qual. Health Res.* 18, 1161–1173. doi:[10.1177/1049732308321736](https://doi.org/10.1177/1049732308321736).
- Vericker, T., Macomber, J., Golden, O., 2010. Infants of depressed mothers living in poverty: opportunities to identify and serve. *Urban Inst.*. Available from <http://www.urban.org/research/publication/infants-depressed-mothers-living-poverty-opportunities-identify-and-serve>.
- Webster, J., Nicholas, C., Velacott, C., Cridland, N., Fawcett, L., 2011. Quality of life and depression following childbirth: impact of social support. *Midwifery* 27, 745–749.
- Xie, R.H., He, G., Koszycki, D., Walker, M., Wen, S.W., 2009. Prenatal social support, postnatal social support, and postpartum depression. *Ann. Epidemiol.* 19, 637–643. doi:[10.1016/j.annepidem.2009.03.008](https://doi.org/10.1016/j.annepidem.2009.03.008).
- Zimet, G.D., Dahlem, N.W., Zimet, S.G., Farley, G.K., 1988. The multidimensional scale of perceived social support. *J. Person. Assess.* 55, 610–617. doi:[10.1207/s15327752jpa5201_2](https://doi.org/10.1207/s15327752jpa5201_2).
- Zimet, G.D., Powell, S.S., Farley, G.K., Werkman, S., Berkoff, K.A., 1990. Psychometric characteristics of the multidimensional scale of perceived social support. *J. Person. Assess.* 55, 610–617. doi:[10.1080/00223891.1990.9674095](https://doi.org/10.1080/00223891.1990.9674095).