Postnatal Depression in First-Time Mothers: Prevalence and Relationships Between Functional and Structural Social Support at 6 and 12 Weeks Postpartum

Patricia Leahy-Warren, Geraldine McCarthy, and Paul Corcoran

Postnatal depression (PND) is a significant public health issue, with variable prevalence and a dearth of research on risk and protective factors. This quantitative longitudinal study of 512 first-time mothers identified the prevalence of PND and examined the relationships between functional and structural social support at 6 and 12 weeks postpartum. The prevalence of PND was 13.2% at 6 weeks and 9.8% at 12 weeks. At 6 and 12 weeks, the only social support dimension independently associated with PND was total functional social support. At-birth formal structural support and emotional functional support were independently predictive of PND at 12 weeks.

THE PURPOSES OF this research were to identify the prevalence of postnatal depression (PND) and examine the relationships between functional and structural social support and PND in first-time mothers at 6 and 12 weeks postpartum. This article is based on a larger research study that examined social support, maternal parental self-efficacy, and PND in first-time mothers at three periods and explored the relationships between these variables. Becoming a mother is a significant developmental transition, and a woman's adaptiveness involves her biopsychosocial being, family, and the society in which she lives (Kiehl & White, 2003). First-time mothers, in particular, are faced with the demands of learning new skills relating to infant care practices and recovering physically and emotionally from child birth. Becoming a mother can cause anxiety with the change of role from being a nonparent and responsible only for one's self to being responsible for the care of a new baby. New roles need to be learned; new relationships, developed; and existing relationships, realigned. The transition to being a mother of a new infant is a process of personal and interpersonal change that occurs as a woman assumes maternal tasks and appraises herself as a mother (Mercer, 2004; Nelson, 2003). During this transitional period, mothers are presented with the challenge of simultaneously providing self-care and infant care while in the hospital and then mastering these skills at home, often in an unsupported environment (Martell, 2001; Weiss, Ryan, Lokken, & Nelson, 2004).

CONCEPTUAL FRAMEWORK

The social exchange theory was chosen as a conceptual framework for this research because it is

From the Catherine McAuley School of Nursing and Midwifery, Brookfield Health Sciences Complex, University College, Cork, Ireland; and National Suicide Research, National Suicide Research Foundation, Cork, Ireland.

Corresponding Author: Patricia Leahy-Warren, PhD, MSc (research), BSc (nursing) HDPHN, RPHN, RM, RGN, Dip. Manag., Senior Lecturer, Catherine McAuley School of Nursing and Midwifery, Brookfield Health Sciences Complex, University College, Cork, Ireland.

E-mail addresses: patricia.leahy@ucc.ie (P. Leahy-Warren), g.mccarthy@ucc.ie (G. McCarthy), dpaulcorcoran@gmail.com (P. Corcoran)

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concerned with the exchange of activity between at least two people (Blau, 1964; Homans, 1961). Social exchange can cover a number of activities to include the provision of information (informational support), hands-on services (instrumental support), emotive sharing of experiences (emotional support), and offering approval to each other (appraisal support). These activities are the functional dimensions of social support. In addition, within the social exchange theory is the necessity for a structure where an interactive process can occur. This structure is known as structural support and consists of a set of people in the mother's social network, which can be either formal (health care professionals) or informal (family/friends/peers). The functional dimensions of social support refer to the exchange activities (i.e., informational, instrumental, emotional, and appraisal support), and the structural dimension refers to the social networks of the mother. These functional dimensions, together with the structural dimensions, might benefit new mothers and are measured in this research of first-time mothers with PND as the outcome.

Literature Review

Postnatal Depression

PND is a serious public health issue, as the prevalence varies between 4.4% and 73.7% internationally depending on definition, measurement instruments used, and geographical area from which the sample is procured (Leahy-Warren & McCarthy, 2007). Previous research has reported that PND adversely effects maternal functioning and the developing mother–infant relationship (Beck, 1995; Murray & Cooper, 1997). Despite its relatively high incidence, PND can be difficult to detect, in part because new mothers are often reluctant to report depressive symptoms to health care professionals (Beck & Gable, 2000). A significant factor in the duration of PND is the length of delay until adequate treatment is received (Beck & Indman, 2005; England, Allard, & George, 1994). The consequences of PND for both mother and infant are well documented. Mothers with PND are twice as likely to experience future episodes of depression over a 5-year period (O' Hara & Swain, 1996). Mothers with PND have described feelings of loss, such as loss of control (Beck, 1992, 1993; Chan & Levy, 2004; Ugarriza, 2002) or loss of former identity (Nicolson, 1990). Previous research has shown that PND can negatively impair mother–infant interactions (Martins & Gaffan, 2000), have adverse effects on the cognitive and emotional development of the child (Beck, 1999), and lead to long-term social interaction difficulties in affected children (Nelson, Hammen, Brennan, & Ullman, 2003). Social support in the guise of supportive counselling either in the home (Holden, Sagovsky, & Cox, 1989; MacArthur et al., 2002) or as a member of a group or telephone contact (Logsdon & Davis, 2004) has been found to be beneficial for some mothers.

Social Support

Social support has been investigated with new mothers in the postpartum period, both from mothers' perspective (Wilkins, 2006) and nurses' perspective (Tarkka, Paunonen, & Laippala, 1999). Research evidence indicates that support benefits the maternal health and well-being of new mothers in the postpartum period (Cronenwett, 1985; Dennis & Kingston, 2008; Leahy-Warren, & McCarthy, 2007; MacArthur, Winter, & Bick, 2007; Pridham, & Zavoral, 1988). Social support is thought to facilitate a woman's transition to motherhood (Plews, Bryar, & Closs, 2005; Shaw, Levitt, Kaczorowsk, & Wong, 2007) and is found to be significantly associated with maternal role development (Emmanuel, Creedy, St John, Gamble, & Brown, 2008). Informal structural social support from husbands and maternal mothers both with household tasks and hands-on infant care for new mothers in the postpartum period has been found by mothers to be of great importance (Barclay, Everett, Rogan, Schmied, & Wyllie, 1997; Häggman-Laitila, 2003). Facilitating social support for first-time mothers in the postpartum period is an important component of the role of nurses and midwives, as previous research has shown that social support can facilitate women's transition to motherhood (Haggerty Davis, Brucker, & MacMullen, 1988; Schachman, Lee, & Lederma, 2004), some of whom find the transition psychologically stressful (Leahy-Warren & McCarthy, 2007).

Relationships Between Social Support and Postpartum Depression

Previous research has illustrated a positive association between informal structural social

support, essentially that given by a partner (Dennis & Ross, 2006) and peers (Dennis, 2003), and PND. The provision of functional support, specifically informational support (reading or video material), has, however, not been found to be of benefit (Logsdon, Birkimer, Simpson, & Looney, 2005). Findings from qualitative research with postpartum depressed mothers revealed emotional functional social support as helpful, especially from peers (Mauthner, 1995) and partners (Tammentie, Paavilainen, Astedt-Kurki, & Tarkka, 2004). A systematic review of the literature on support programs in the postpartum period (Shaw, Levitt, Wong, Kaczorowski, & Group, T. M. U. P. R., 2006) revealed that neither home visitation nor peer support reduced depression scores for mothers as measured by the Edinburgh Postnatal Depression Scale (EPDS). Furthermore, the researchers concluded that no randomized control trial evidence was found to endorse universal provision of support to unselected low-risk women because it did not improve maternal mental health. However, mothers at high risk of PND (those scoring >12 on the EPDS) who received home visitation or peer support, respectively, had significant reductions in depression (difference: −2.23, 95% confidence interval [CI] = −3.72 to −0.74, p = .004; and 15.0% vs. 52.4%, odds ratio [OR] = 6.23, 95% CI = 1.40–27.84, p = .01). Although Shaw et al. (2006) assert that there is no evidence that "universal postpartum support" is of benefit to mothers, there is evidence that mothers at high risk of PND would benefit from formal and informal structural social support home visits such as that provided by health professionals and peers.

From a methodological perspective, some limitations of the previously mentioned studies on social support and PND were identified. Previous research has used a variety of data collection methods (Pridham & Zavoral, 1988) and instruments to measure social support (Logsdon, Usui, Birkimer, & McBride., 1996; Reece, 1993), which make comparisons of results difficult. Previous studies examined the formal structural social support input of individual health professionals such as midwives only (Tarkka & Paunonen, 1996) or public health nurses only (Plews et al., 2005; Tarkka et al., 1999) and informal social support from peers, partners, and grandparents (Dennis, 2003; Dennis & Ross, 2006; Pridham & Zavoral, 1988). However, limited research that investigated formal and informal social support together exists. Furthermore, a number of data collection points (Reece, 1993; Tarkka & Paunonen, 1996; Tarkka et al., 1999) were used with a paucity of longitudinal studies (Shaw et al., 2006) and in those using samples of first-time mothers only.

In summary, the transition to motherhood is a major life event that has been shown to be related to PND. However, in clinical practice, it is identified neither in first-time mothers nor in supports put in place to ameliorate the effects. Social support has been found to help with the transition, particularly social support derived from partners, peers, and maternal mothers and from home visits from health care professionals. However, what is less evident from the research reviewed is the contribution of both formal and informal structural social support in the context of the four functional dimensions of social support and their relationships with PND during the first 3 months postpartum.

METHODS

Study Design and Sample

A quantitative longitudinal design was used. A convenience sample of first-time mothers was recruited in the Republic of Ireland. Eligibility criteria for selection were as follows: first-time mother, 18 years or older, medically uncomplicated pregnancy, full-term at delivery, singleton baby, baby discharged with mother, English as first language, and white Caucasian. Power analysis indicated that the study had an 80% power to identify an OR of 3 (associated with risk of PND at one level of support compared with another) as being significant at the 5% level of statistical significance.

Procedure

Over the study period (January–June 2008), midwives approached 597 mothers who met the eligibility criteria and provided them with a study information leaflet. An expression of interest was made by 589 mothers, all of whom were met by the researcher and consented to participate. Of these, 512 (87%) returned the self-completed baseline questionnaires. Questionnaires were mailed to participants' home address for completion at 6 and 12 weeks, respectively. Completed questionnaires were returned in the stamped addressed envelope provided at 6 weeks (n = 410) and at 12

weeks (n = 367). This study was approved by the Clinical Research Ethics Committee.

Instruments

The survey instruments were presented in booklet form to facilitate completion by participants. The following measures were used in this analysis.

Demographic Information

Information on mothers' age, household situation, level of education, gender of the baby, type of delivery, infant feeding method, and day of discharge was collected in a background information sheet at each data collection point.

Postnatal Depression

The EPDS (Cox, Holden, & Sagovsky, 1987) is a 10-item self-report instrument designed to detect PND. Examples of statements are "Things have been getting on top of me" and "I have felt sad or miserable." In this study, PND was determined by the total score on the EPDS using a cutoff of >11 as recommended by Cox and Holden (2003). The sensitivity and specificity of the EPDS have been assessed in numerous international studies (Beck & Gable, 2001; Guedeney, Fermanian, Guelfi, & Kumar, 2000; Muzik et al., 2000). The Cronbach's alpha coefficient for this sample was .88, demonstrating internal consistency.

Social Support

A researcher-developed instrument was designed to measure functional and structural social support utilizing a conceptual framework based on the social exchange theory of Homans (1961) and Blau (1964). Functional social support was measured using a 4-point Likert scale that included items relating to indicators of Informational, Instrumental, Emotional, and Appraisal Support. The structural social support instrument was designed to elicit information on first-time mothers' social network (i.e., health professionals or family/friends/peers). Content validity was ensured through the generation of items from the relevant literature and pertinent published instruments (Logsdon et al., 1996; Norbeck, 1988) and a review by experienced nurse/midwife researchers. The Cronbach's alpha coefficient for the total scale for this sample was .80, which suggests good internal consistency.

Data Analysis

Data analysis was carried out using the Statistical Package for Social Sciences Version 16.0 and StatsDirect. The chi-square test was used to assess differences between responders and nonresponders at follow-up in relation to categorical variables. A paired t test was used to assess differences in EPDS scores at the 6- and 12-week follow-up. The total functional social support score, the scores on each of its four subscales, and the informal social support scores were classified into tertiles to represent mothers receiving low, medium, and high levels of the respective supports in the investigation of linear and nonlinear associations with PND. A series of multivariate logistic regression models were estimated to assess the risk of PND at 6 and 12 weeks associated with each type of social support with adjustment for potential confounders (age, education level, type of delivery, gender of the baby, and method of feeding the baby). A final regression model was estimated using a hierarchical approach. The potential confounders constituted the first block of independent variables and were entered automatically. The social support measures constituted the second block of independent variables, and these were selected into the regression model using a forward step-wise approach. This was done for PND at 6 and 12 weeks and using social support measures at birth and follow-up. The derived measure of association was the OR, and this was reported along with its associated 95% CI and its p value. Power analysis indicated that the study had 80% power to identify an OR of 3 (associated with risk of PND at one level of support compared with another) as being significant at the 5% level of statistical significance.

Analysis of Recruitment and Attrition Biases

Comparisons were made between responders and nonresponders with regard to demographic and major variable characteristics. There was no significant difference between responders and nonresponders with regard to the gender of the baby, length of stay in hospital, type of delivery, and level of education. There was some evidence that the two groups differed between 6 and 12 weeks in that women who breast-fed or combination fed their babies had an 80% follow-up rate, compared with a 70% rate for mothers who were bottle feeding only ($\chi^2 = 6.55$, $df = 2$, $p = .038$).

FINDINGS

Sociodemographic Characteristics of the Participants

Demographic data revealed that 33.6% of respondents were in the 31–35-year age category and 30.1% were in the 27–30-year category. Twenty percent of respondents were educated to secondary school level; and a further 72%, to university/third level. One fifth (20%) stated their occupation in the category "clerical"; 17%, in the category "associate professionals"; 9.5%, in the category "health associate professionals"; 8.7%, in the category "health and education professionals"; and the remainder, in the category "managers and proprietors." In relation to living arrangements, 64% (n = 305) of the respondents reported living with their husband; 23% (n = 110), with their partner; 7% (n = 49), with their parents; or 4% (n = 16), alone. The average stay in the hospital was 3.6 days, with most women (44.7%, n = 226) exclusively breast-feeding. A greater number of vaginal deliveries (68%, n = 258) than caesarean sections (33%, n = 128) were reported among respondents (Table 1).

Table 1. Characteristics of First-Time Mother at Baby's Birth (n = 512)

	n	%
Age		
18–22 years	57	11.2
23–26 years	68	13.3
27–30 years	154	30.2
31–35 years	172	33.7
36–40 years	50	9.8
>41 years	9	1.8
Household situation		
Alone	16	3.3
Husband	306	63.0
Partner	110	22.6
Parents	49	10.1
Other	5	1.0
Level of education		
Elementary/Primary	10	2.0
High school/Secondary	132	26.5
College/University	356	71.5
Gender of the baby		
Female	268	52.5
Male	242	47.5
Type of delivery		
Vaginal	201	39.6
Caesarean section	157	30.9
Instrumental	150	29.5
Infant feeding method		
Breast	226	44.7
Bottle	219	43.3
Both	61	12.0
Discharge day		
Day 1	2	0.5
Day 2	35	8.9
Day 3	149	37.8
Day 4	138	35.0
Day 5 or later	70	17.8

Prevalence of PND and Difference Between 6 and 12 weeks

A prevalence rate of 13.2% (95% CI = 9.8%–16.6%) was found at 6 weeks and 9.8% (95% CI = 6.5%–13.1%) at 12 weeks. The 12-week prevalence of PND at 9.8% was lower than that reported at 6 weeks (13.2%) because most (59.1%) women who scored >11 on the EPDS at 6 weeks scored <11 at 12 weeks, whereas only 4.6% of the women who scored <11 on the EPDS at 6 weeks scored >11 at 12 weeks. The difference in the prevalence of PND scores from 6 weeks (M = 7.28) to 12 weeks (M = 5.59) was statistically significant (M difference = 1.69; t = 8.50, df = 305, p = .001).

Relationships Between Structural and Functional Social Support and PND at 6 Weeks

There was a graded and highly significant relationship between total functional social support and PND at 6 weeks. Mothers receiving medium and low levels of such support had 6 and 12 times the risk of PND, respectively, as those receiving high levels. Each of the four types of functional support was associated with PND. Emotional and appraisal support had the stronger relationship. Mothers with low levels of these forms of support had 6 to 7 times the risk of mothers with high levels (Table 2). The multivariate regression that considered all social support measures together selected only total functional social support as a predictor of PND at 6 weeks. Compared with those with high total functional social support, there was a markedly elevated risk of PND in mothers with medium (OR = 5.98, 95% CI = 1.61–22.16, p < .01) and low (OR = 12.38, 95% CI = 3.59–42.69, p < .001) support levels.

Relationships Between Structural and Functional Social Support and PND at 12 Weeks

Emotional support received at 12 weeks was very strongly related with risk of PND at this time

Table 2. Risk of PND at 6 Weeks at Each Level of Social Support Assessed at 6 Weeks

	Depressed, % (*n*/*N*)	OR[a]	95% CI
Informational support			
Low	18.4 (19/103)	2.74*	1.17–6.37
Medium	12.7 (19/150)	1.81	0.78–4.19
High (reference)	8.4 (19/119)	1.00	–
Instrumental support			
Low	21.6 (22/102)	4.35‡	1.85–10.24
Medium	11.8 (16/136)	1.77	0.74–4.25
High (reference)	6.9 (9/130)	1.00	–
Emotional support			
Low	20.5 (30/146)	7.16‡	2.41–21.27
Medium	12.4 (15/121)	4.41*	1.39–13.39
High (reference)	3.6 (4/112)	1.00	–
Appraisal support			
Low	20.2 (33/163)	6.54‡	2.42–17.68
Medium	11.3 (11/97)	3.16*	1.04–9.63
High (reference)	4.1 (5/121)	1.00	–
Total functional support			
Low	22.2 (30/135)	12.46‡	3.63–42.80
Medium	11.8 (14/119)	6.60†	1.80–24.21
High (reference)	2.5 (3/120)	1.00	–
Informal structural support			
Low	20.0 (32/160)	3.57‡	1.61–7.90
Medium	11.5 (10/87)	1.91	0.72–5.02
High (reference)	6.5 (9/139)	1.00	–
Formal structural support			
No	13.5 (14/104)	1.03	0.49–1.89
Yes (reference)	13.1 (37/282)	1.00	–

[a] odds ratio adjusted for potential confounders (age, education level, type of delivery, sex of baby, method of feeding baby).
* $p < .05$.
† $p < .01$.
‡ $p < .001$.

Table 3. Risk of PND at 12 Weeks at Each Level of Support Assessed at 12 Weeks

	Depressed, % (*n*/*N*)	OR[a]	95% CI
Informational support			
Low	12.1 (11/91)	2.14	0.74–6.21
Medium	9.2 (11/119)	1.53	0.53–4.39
High (reference)	6.6 (6/91)	1.00	–
Instrumental support			
Low	15.7 (18/115)	4.58*	1.55–13.52
Medium	7.5 (7/93)	1.52	0.45–5.13
High (reference)	5.1 (5/98)	1.00	–
Emotional support			
Low	14.7 (20/136)	7.88†	1.78–34.83
Medium	11.6 (8/69)	5.14*	1.03–25.77
High (reference)	2.0 (2/100)	1.00	–
Appraisal support			
Low	15.5 (22/142)	9.02†	2.03–40.05
Medium	8.7 (6/69)	5.00	0.76–21.15
High (reference)	2.1 (2/96)	1.00	–
Total functional support			
Low	17.4 (19/109)	4.90†	1.67–14.40
Medium	6.1 (6/98)	1.17	0.34–4.09
High (reference)	5.1 (5/99)	1.00	–
Informal structural support			
Low	13.4 (9/67)	2.29	0.79–6.66
Medium	10.6 (14/132)	1.70	0.64–4.51
High (reference)	6.5 (7/108)	1.00	–
Formal structural support			
No	9.8 (13/132)	1.02	0.51–2.45
Yes (reference)	9.7 (17/175)	1.00	–

* $p < .05$.
† $p < .01$.
[a] odds ratio adjusted for potential confounders (age, education level, type of delivery, sex of baby, method of feeding baby).

(Table 3). Only 2% of mothers receiving a high level of emotional support scored higher than 11 on the PND scale. Mothers receiving medium and low levels of emotional support had five and eight times higher risk of PND, respectively. Similarly, mothers receiving low levels of appraisal support had nine times the risk of PND of mothers receiving high levels of such support. Instrumental support and total functional support had weaker but still statistically significant relationships with risk of PND. Mothers categorized as receiving low levels of these forms of support had almost five times the risk of PND as mothers receiving high levels (Table 3). When all social support measures were considered together, only total functional social support was significantly predictive of PND at 12 weeks. There was a markedly elevated risk of PND in mothers with low (OR = 4.96, 95% CI = 1.69–14.57, $p < .01$) support, compared with those with high total functional social support.

Relationships Between Structural and Functional Social Support at Birth and PND at 6 and 12 Weeks

None of the at-birth social support measures were associated with risk of PND at 6 weeks (Table 4). Mothers with a low level of emotional support at birth were at a significantly increased risk of PND at 12 weeks compared with mothers receiving a high level of emotional support (OR = 3.14, 95% CI = 1.28–7.73, $p < .05$). Mothers who did not receive formal structural support at birth were also at a significantly increased risk of PND at 12 weeks

relative to those who received such support at birth (OR = 3.19, 95% CI = 1.31–7.76, $p < .05$). No other measures of social support at birth were significantly associated with risk of PND at 12 weeks (Table 4). When all at-birth social support measures were considered together as predictors of PND at 12 weeks, formal social support and emotional social support were selected into the regression equation. Mothers who did not receive formal social support at birth were at an increased risk of PND (OR = 3.24, 95% CI = 1.27–8.24, $p < .05$). There was an elevated risk of PND at 12 weeks in mothers with low (OR = 2.92, 95% CI = 1.14–7.48, $p < .05$) emotional support, compared with those with high emotional social support at birth.

Table 4. Risk of PND at 6 and 12 Weeks at Each Level of Support Assessed at Birth

	PND at 6 Weeks		PND at 12 Weeks	
	OR[a]	95% CI	OR[a]	95% CI
Informational support				
Low	0.78	0.34–1.79	1.83	0.62–5.44
Medium	1.01	0.49–2.10	1.72	0.63–4.68
High (reference)	1.00	–	1.00	–
Instrumental support				
Low	0.88	0.40–1.93	1.83	0.64–5.17
Medium	1.02	0.47–2.19	1.26	0.43–3.69
High (reference)	1.00	–	1.00	–
Emotional support				
Low	0.85	0.40–1.80	3.14*	1.28–7.73
Medium	0.86	0.43–1.75	1.38	0.46–4.13
High (reference)	1.00	–	1.00	–
Appraisal support				
Low	0.67	0.31–1.47	2.11	0.73–6.07
Medium	0.86	0.41–1.80	1.37	0.47–3.98
High (reference)	1.00	–	1.00	–
Total functional support				
Low	0.92	0.44–1.95	2.77	0.98–7.84
Medium	0.84	0.40–1.79	1.80	0.60–5.43
High (reference)	1.00	–	1.00	–
Informal structural support				
Low	1.90	0.79–4.59	1.65	0.55–4.95
Medium	1.73	0.72–4.14	1.44	0.47–4.36
High (reference)	1.00	–	1.00	–
Formal structural support				
No	1.55	0.76–3.16	3.19*	1.31–7.76
Yes (reference)	1.00	–	1.00	–

* $p < .01$.

[a] OR adjusted for potential confounders (age, education level, type of delivery, gender of the baby, and method of feeding the baby).

In summary of the relationships between social support and PND, at-birth formal structural support and emotional functional support were independently predictive of PND at 12 weeks. At 6 and 12 weeks, the only social support dimension independently associated with PND was total functional social support.

DISCUSSION

The prevalence rate of PND in this study at 6 weeks was 13.2%, which is comparable with previous research in Ireland, where prevalence rates of PND varied from 11.4% to 28.6% (Crotty & Sheehan, 2004; Cryan et al., 2001; Greene, Nugent, Weieczorek-Deering, O'Mahony, & Graham, 1991; Lane et al., 1997; Martin, 1977; O'Neill, Murphy, & Greene, 1990). The variance could be attributed to the high representation of mothers with a previous history of depression in one study (Cryan et al., 2001) and mothers with single status in another (Greene et al., 1991). Nevertheless, the most recently published study compares well with similar rates at 14.4% at 6 weeks (Crotty & Sheehan, 2004). Previous international researches have reported similar rates at 6 weeks (Gao, Chan, & Mao, 2008) and varying rates from 11.2% at 8 weeks (Eisenach et al., 2008) to 10.4% at 9 weeks (O' Hara, Zekoski, Phillips, & Wright, 1990) to 23.3% at 14 weeks (Stuart, Couser, Schilder, O'Hara, & Gorman, 1998) and 29.9% between 6 and 24 weeks (Ege, Timur, Zincir, Geçkil, & Sunar-Reeder, 2008). The variability could be due to differences in sample methodologies/demographics, data collection points, and method of measuring depressive symptoms.

The prevalence rates in this study dropped from 13.2% at 6 weeks to 9.8% at 12 weeks, similar to findings from previous research with rates of 10.6% (Morse, Durkin, Buist, and Milgrom, 2004) and 10.2% (Righetti-Veltema, Conne-Pereard, Bousquet, & Manzano, 1998) at 12 weeks. Matthey, Barnett, Judy, and Waters (2000) reported an even lower prevalence rate of 6.4% at 4 months. Findings from the most recent meta-analysis of 59 studies (n = 12,810) reported a prevalence rate of 13% (O' Hara & Swain, 1996), with most cases commencing in the first 3 months postpartum, which is similar to the research findings of this study. The most important strength of this study with regard to identifying the prevalence of PND is that a large sample of first-time mothers participat-

ed both at 6 and 12 weeks after delivery. Findings from this research also showed that the rates of PND reduced from 6 to 12 weeks, indicating that mothers experienced more depressive symptoms earlier in the postpartum period and that natural resolution of the disorder occurred. A possible explanation for this may be that as mothers became more familiar with their role as a mother, their mood lightens accordingly.

The dimensions of social support as conceptualized for this study were associated with PND over the 12 weeks postpartum. The associations were independent of age, education level, type of delivery, gender of the baby, and method of feeding the baby, similar to previous research (Chen, Kuo, Chou, & Chen, 2007; Gotlib, Whiffen, Mount, Milne, & Cordy, 1989; Kim, Hur, Kim, Oh, & Shin, 2008). There was wide variation in the strengths of the associations between social support dimensions and PND. At 6 and 12 weeks, the only social support dimension independently associated with PND was total functional social support. This is an important finding in that all four dimensions of functional support were significant in reducing PND throughout the 12 weeks postpartum. That lower levels of social support were related to higher depressive symptomatology in the postpartum period is consistent with previous studies (Ege et al., 2008; Gao et al., 2008; Glasser et al., 2000; Inandi et al., 2002; Logsdon, Birkimer, & Barbee, 1997; O' Hara & Swain, 1996; Surkan, Peterson, Hughes, & Gottlieb, 2006). What this research adds to previous research relates to the specific functional dimensions measured. This finding signifies the importance of the provision of all four dimensions of social support in lowering depression for mothers. What is interesting is the exception of the significance of informational support at 12 weeks in reducing depression. This finding suggests that information as a dimension of functional support is less significant in reducing depression at 12 weeks. Although all four dimensions of social support contributed to the mental health and well-being of mothers during this transitional period, overall total functional social support made the most significant independent contribution, indicating the importance of all functions collectively.

Informal structural social support network sources were weakly related to PND in this research. Most mothers identified partners, own mothers, and friends as providing them with all four types of social support. This finding is consistent with previous research where partner support had a significant effect in reducing PND (Misri, Kostaras, Fox, & Kostaras, 2000) as did peer support (Dennis, 2003). This study found that at-birth formal structural support and emotional functional support were independently predictive of PND at 12 weeks. Whereas previous research has shown evidence that mothers at high risk of PND would benefit from formal and informal structural social support home visits such as that provided by health professionals (Shaw et al., 2006), this research has found that the best predictor of PND at 12 weeks is formal structural support at birth. Although few studies investigated the relationship between formal social support at birth and PND in first-time mothers, this has implications for clinical practice when contact with health professionals is at its greatest intensity. This is a new finding and signifies the need for health care professionals, particularly nurses and midwives, to be mindful of the importance of supporting first-time mothers in the early postnatal period and fostering emotional functional social support from significant others within mothers' social network. Members of mothers' informal social networks, such as husbands, partners, and own mothers, need to be encouraged to provide functional social support throughout pregnancy, delivery, and the postpartum period.

CONCLUSION

The results from this study indicate that the prevalence of PND is significant for first-time mothers, ranging from 13.2% at 6 weeks to 9.8% at 12 weeks. The best predictors of PND at 12 weeks were formal structural support and emotional functional support at birth, which has important implications for clinical practice. Strategies for encouraging greater health care professional support in the early postpartum period and facilitating and mobilizing emotional functional social support from both formal and informal sources should be a high priority for health services in reducing morbidity for first-time mothers.

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