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Research paper

Immediate postpartum mood assessment and postpartum depressive symptoms☆

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ABSTRACT

Background: Negative affect (NA) and positive affect (PA) in the early postpartum period have been associated with postpartum depressive symptoms, but the exact relationship is not well understood. This study aimed to determine if NA and PA in the immediate postpartum period predicted postpartum depressive symptoms over and above well-established predictors (previous trauma, history of depression).

Methods: Participants were prospectively recruited from a Mother-Baby Unit at a large Midwestern academic medical center in the United States from April 2011 to April 2014. Participants (N=526) completed the Daily Experiences Questionnaire (DEQ), a self-report measure which assessed NA and PA, within three days post-delivery. Participants then reported their depressive symptoms at two weeks (n=364) and twelve weeks postpartum (n=271).

Results: Hierarchical regression analyses indicated that *low PA* and *high NA* after birth significantly predicted depressive symptoms early (at 2 weeks) and later (at 12 weeks) in the postpartum period, over and above previous traumatic experiences and history of depression.

Limitations: The sample was relatively homogenous, and data were from self-report instruments.

Conclusions: The current study found NA and PA in the days immediately after birth predicted depressive symptoms at multiple time points in the postpartum period. Because the perinatal period places women at a higher risk for depressive symptomatology, prevention and early intervention are critical. Measuring affect in hospitals immediately after birth may provide a more normalized set of items that is predictive of later depression, which will allow physicians to identify those at highest risk for developing depressive symptoms.

1. Immediate postpartum mood assessment and postpartum depressive symptoms

Postpartum depression can have far-reaching negative consequences for a woman, her child, and the entire family (Wisner et al., 2010). Postpartum depression is defined as a depressive episode without psychosis that begins in the postpartum period or continues on from pregnancy (O'Hara and Swain, 1996). Approximately one in five women experience depressive symptoms in pregnancy (Gavin et al., 2005) and a recent review estimated prevalence of postpartum depression to be between 13% and 19% (O'Hara and McCabe, 2013). Depressive symptoms in the postpartum period remain under-detected (Flynn et al., 2006) because many women do not seek help (McGarry et al., 2009). This is problematic because postpartum depressive symptoms are associated with marital problems (Letourneau et al., 2012), weakened social support networks (Feldman et al., 2009), later episodes of depression (Alpern and Lyons-Ruth, 1993), and long-term negative effects on children (Field, 2010).

Many women experience the "postpartum blues", a well-established phenomenon that has been characterized as a mild mood disruption that occurs within the first ten days post-delivery (Gonidakis et al., 2007; Hau and Levy, 2003; Harris et al., 1994; O'Keane et al., 2011). Symptoms of the postpartum blues usually include tearfulness, emotional lability, and fatigue, although temporary anxiety and confusion are also common (Newport et al., 2002). While the postpartum blues are transient (Harris et al., 1994), it is unknown if mood, specifically negative and positive affect, in the immediate postpartum (before the usual onset of the blues) could be considered a prodrome to the onset of postpartum depressive symptoms. The immediate postpartum period may represent a unique window of time to identify and assess

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those most at risk to develop a later depressive episode and needs to be better understood. The aims of the present report are to describe mood in the immediate postpartum period (delivery to three days postpartum) and its potential to predict later postpartum depressive symptoms.

There is a significant literature suggesting that high negative and low positive affect specifically are the foundation of mood and anxiety disorder symptoms (Brown et al., 1998; Crawford and Henry, 2004; Mineka et al., 1998; Watson et al., 1999). Negative affect typically includes depressed mood, insomnia, and poor concentration while low positive affect includes loss of interest or anhedonia (Clark and Watson, 1991; Watson, 2005). Multiple studies have found a significant relationship between high negative affect or low positive affect in the immediate postpartum and subsequent postpartum depression (Fossey et al., 1997; Watanabe et al., 2008; Buttner et al., 2015). Further, mood disturbances at three days postpartum are the best predictor of postpartum depression at six weeks postpartum (Lane et al., 1997), while mood disturbances within the first two weeks postpartum significantly predicted postpartum depression and anxiety disorders at twelve weeks postpartum (Reck et al., 2009). Negative and positive affect are an important component in understanding perinatal mood disorders although the exact relation is still understudied (Buttner et al., 2015; Pop et al., 2015).

It is important to determine if early negative affect and positive affect (measured on the maternity ward) predict depressive symptoms later in the postpartum period. Assessment in the earliest part of the postpartum period could allow health care providers to identify women who should be monitored closely throughout the postpartum period (US Preventive Services Task Force, 2016). Assessment in the earliest part of the postpartum period has historically been limited by methodological concerns (e.g. small or unrepresentative samples, primarily retrospective reporting, or measures not designed for the postpartum period; Henshaw, 2003). However, an assessment measure that is based on descriptions of emotions reflective of negative and positive affect, rather than descriptions of depressive symptoms, administered immediately after delivery may be particularly acceptable to postpartum women (Leigh and Milgrom, 2007).

This study utilized prospective, longitudinal data from a non-clinical sample, measuring postpartum mood immediately after delivery and at two subsequent time points in the early postpartum period. This study aimed to determine if negative and positive affect in the immediate postpartum period predict depressive symptoms over and above well-established predictors of postpartum depressive symptoms, particularly previous traumatic experiences and recent history of depression. It was hypothesized that high levels of negative affect and low levels of positive affect would predict depressive symptoms at two and twelve weeks postpartum.

2. Method

2.1. Participants and procedures

All procedures were approved by the University of Iowa Institutional Review Board. Participant data were aggregated from two studies on mood in the postpartum period that utilized the same measures. The first study examined posttraumatic stress disorder in the early postpartum period and its relation to maternal health behaviors and infant temperament at 12 weeks postpartum. The second study examined obsessive-compulsive symptoms in the early postpartum and its relation to depressive and trauma symptoms. Altogether, recruitment occurred from April 2011 to April 2014. Both studies used the same recruitment procedures.

The source population included women who had recently delivered and were admitted to the mother-baby unit at a large academic medical center in Iowa City, Iowa, USA. Researchers visited the mother-baby unit most days during the week and approached all postpartum women on the floor to inquire about eligibility for the studies. From this population, women were excluded if they were under 18 years of age, unable to read and speak English, on leave from incarceration, or giving their child up for adoption. Women who were eligible for the study were asked if they were interested in participating in a study regarding mood, thoughts, and feelings in the postpartum period and were given information regarding the procedures and aims of the studies. Women who expressed interest in the study were consented and began study procedures. Of note, women were included in the study regardless of birth complications, number of days spent on the mother-baby unit, and method of delivery. Therefore, the study population included any eligible, postpartum woman who wanted to participate in either of the studies described above. The target population, to which inferences based on presented results can be made, includes non-clinical, postpartum women with demographic characteristics similar to those found in the current study. Approximately 71.6% of participants reported demographic information (Table 1).

If a participant agreed to participate, a research team member immediately administered the Daily Experiences Questionnaire (DEQ). The date a mother completed the DEQ was noted to determine length of time between DEQ administration and delivery date. A determination of 0 days occurred when a mother completed the DEQ on the same day as her delivery. Subsequent calendar days determined length of time separating DEQ administration and delivery, regardless of time of day the DEQ was administered. We examined whether there were differences in positive and negative affect, as well as 2- and 12-week depressive symptoms, based on the number of days between when the

Table 1
Participant characteristics.

Demographics (N ~ 380*)	% (n) M (SD), *Range*
Race	
Caucasian	89.6(337)
African American	4.8(18)
Latina	4.4(17)
Asian	1.9(10)
More than one race	1.9(10)
American Indian	.3(1)
Age	30.1(4.8), 19–45
Committed relationship	82.4(318)
Household income	
≤20 K	13.4(51)
> 20 K and < 70 K	49.6(189)
≥70 K	37.0(141)
Parity	
Primiparous	43.8(167)
Multiparous	56.6(218)
Wantedness	
Sooner or at that time	74.5(284)
Later date	20.2(77)
Never	5.2(20)
Treatment for Depression/Anxiety	
No history	83.2(321)
History of treatment ±	16.8(65)
Pregnancy complications	
No	53.5(206)
Yes	46.5 (176)
Trauma exposure	
Zero events	15.9(60)
One event	26.7(101)
Two or more events	57.4(217)
Positive affect	37.96(8.21)
Negative affect	31.16(9.93)
Depressive symptoms, 2 weeks	38.18(11.03)
Depressive symptoms, 12 weeks	35.03(10.05)

Note. N=Number of participants; %=percentage of the total sample; M=mean; SD=standard deviation

* =the number of participants reporting data ranged from 372 to 387; ± =history of seeking treatment for depression or anxiety in the 12 months prior to pregnancy.