

Factors Affecting Postpartum Depressive Symptoms of Adolescent Mothers

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Objective: To assess the extent that anticipated maternal emotions in response to infant care (infant care emotionality or frustration and dissatisfaction with infant crying or fussing, or both), several forms of social support, and socioeconomic status explain fourth-week postpartum depressive symptoms of adolescent mothers.

Design: Secondary multiple regression analysis of a subset of variables from a larger longitudinal study that examined adolescent mothers and infants.

Setting: Two university teaching hospitals in Western Canada.

Participants: Convenience sample of 78 healthy adolescent mothers.

Main Outcome Measures: Prenatal anticipated infant care emotionality, perceived family and friend social support, socioeconomic status, enacted social support, and postpartum depressive symptoms.

Results: Anticipated infant care emotionality ($R^2 = .19$) and socioeconomic status ($R^2 = .07$) significantly predicted postpartum depressive symptoms. Family support, friend support, and enacted social support were not significant predictors of postpartum depressive symptoms.

Conclusion: Nurses in various settings can assess the pregnant adolescent's anticipated infant care emotionality and socioeconomic status to determine their potential risk or vulnerability to postpartum depressive symptoms. More negative prenatal infant care emotionality was the strongest predictor of postpartum depressive symptoms. Validation of study findings with a larger, more representative sample is recommended. *JOGNN*, 36, 47-54; 2007. DOI: 10.1111/J.1552-6909.2006.00114.x

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Depression affects transition to the maternal role for many older and adolescent mothers. From 6.5% to 28% of new mothers are reported to experience postpartum depression (PPD) (Barlow & Coren, 2001). From 50% to 80% of new mothers suffer from the short-lived postpartum mood disorder, or “baby blues” (Beck, 1999). Minor depression is a less serious form of depression comprising a constellation of symptoms that impair functioning (Gaynes et al., 2005). While adolescent mothers appear more prone to postpartum depressive symptoms (PDS), with rates as high as 50% reported (Logsdon, Birkimer, Simpson, & Looney, 2005), there is limited knowledge about specific factors that contribute to its development.

Because almost one-half of adolescent mothers are reported to suffer PPD, greater knowledge of factors that predict depression is needed to inform screening.

Several researchers have described various maternal, child, and situational factors associated with depression severity or occurrence, or both among mothers. These factors include level of social (Secco &

Moffatt, 2003a, b) and child care support (Letourneau, Stewart, & Barnfther, 2004), self-esteem (Logsdon et al., 2005), and maternal role competence (Birkeland, Thompson, & Phares, 2005). Relationships between social support and both parenting-related depression (Secco & Moffatt, 2003b) and child care stress (Beck, 2001) suggest that parenting itself is a trigger for PDS. Furthermore, the responsibility of infant care during adolescence, a time of self-maturation and psychosocial growth, contributes to depression (Birkeland et al., 2005). A complicating factor is that depressed mood naturally occurs during the adolescent period in the absence of pregnancy and parenting, with rates as high as 30% to 40% reported (Compas, Hiden, & Gerhardt, 1995).

The high rate of PDS among adolescent mothers suggests a vulnerability to PPD, which Beck described as a thief that robs precious time that the mother has with her infant (Beck, 1999). Depression negatively affects maternal role competence or self-efficacy of older (Gross, Conrad, Fogg, & Wothke, 1994) and adolescent mothers (Birkeland et al., 2005) and likely affects the emotional tone of infant care during the postpartum period. Depressive symptoms, including emotional lability, mental confusion, anxiety, and insecurity (Beck & Indman, 2005), can affect the adolescent mother's ability to care for her infant and, in particular, to deal with negative infant responses to her care such as crying and fussing that can contribute to depressive symptoms (Oberlander, 2005). A significant relationship between infant care emotionality and depression-related parenting stress (Secco & Moffatt, 2003b) indicates the need for further study. It is especially important to examine this question because PPD has been associated with child abuse (Wilson et al., 1996) and the genesis of violent childhood behavior (Hay, Pawlby, Angold, Harold, & Sharp, 2003). Greater understanding of factors that contribute to PDS of adolescent mothers would inform nursing care and policy related to better detection, prevention, and treatment so that outcomes are improved for adolescent mothers, children, and their families.

Theoretical Framework

This study of PDS among adolescent mothers was guided by the three theoretical perspectives: (a) becoming a mother (Mercer, 2004); (b) infant care emotionality, a component of infant care competence (Secco, 2002); and (c) social support (Stewart, 2000). Becoming a mother involves transition, learning, new behaviors, new responsibilities, and emotional challenges (Mercer). A mother who is able to provide infant care feels a sense of efficacy or competence (Secco) that translates to positive emotions within the mother-infant relationship. Within the mother-infant relationship, the infant learns his/her role and communicates needs for care through behavioral response to

maternal care. Infant behavioral responses inform the mother whether her care was effective, which, in turn, affects subsequent infant care decisions (Brazelton & Cramer, 1990) and maternal emotions experienced. Maternal infant care emotionality is affected by the infant's behavioral response to her care. When an infant consistently responds negatively to maternal care, for example, crying and fussing, the mother likely experiences frustration and lowered sense of infant care competence, or being able to care for her infant (Secco & Moffatt, 2002). This lowered maternal infant care competence and associated negative emotions contribute to depression (Oberlander, 2005).

The responsibility of infant care is a great challenge for the adolescent mother who is still achieving self-identity (Erickson, 1968). Becoming a mother is also affected by mental well-being and social support network features (Stewart, 2000) that act to protect against distress (Lin, Ye, & Ensel, 1999) and lower PDS. Peer support is especially important to the adolescent for it can optimize existing support networks or also add new support ties (Cohen, Underwood, & Gottlieb, 2000).

Research Questions

This secondary analysis was conducted to describe the relationship between prenatal infant care emotionality, social support, socioeconomic status (SES), and PDS by asking:

1. What are the prenatal infant care emotionality, social support, and PDS levels of adolescent mothers?
2. Are prenatal infant care emotionality, social support, and SES associated with PDS?
3. Do prenatal infant care emotionality, SES, and social support predict PDS of adolescent mothers?

Methods

Sample

A convenience sample of 78 pregnant adolescent mothers was recruited during the third trimester into a longitudinal study that measured numerous variables until the infant was 12 to 18 months old. The participating adolescent mothers were mainly Caucasian and Métis or First Nations decent, or both (Table 1). One-half of the adolescents reported being single and 50% reported having a "serious boyfriend," partner, or being married. The SES of the sample, represented with grandmother educational level, showed that over 62% had a high school education or less. At recruitment, the average age of the adolescent mothers was 16.79 years, and they had, on average, completed 9.55 years of school. The study infants were healthy, full term (37 or more weeks gestation), and had a mean birth weight of 7.8 pounds (Table 1).

Over a 24-month period participants were recruited from the adolescent obstetric clinics of two teaching

TABLE 1
Demographic Characteristics of the Sample

Characteristic	n (%)	M	SD	Range
Ethnicity				
Caucasian	38 (47.5)			
Metis/First Nations	33 (41.3)			
Other	7 (11.2)			
Marital status				
Single	39 (50.0)			
Married	2 (2.6)			
Common law	16 (20.5)			
“Serious boyfriend”	21 (26.9)			
Socioeconomic Status				
1 = grades 1-8	9 (12.5)			
2 = grades 9-12	36 (50.0)			
3 = vocational or some university	12 (16.7)			
4 = university degree	12 (16.7)			
5 = graduate degree	3 (4.2)			
Completed years high school	78	9.55	1.37	8
Age	77	16.79	1.79	5
Birthweight	71	7.78	1.18	5.95

hospitals in Winnipeg, Manitoba. Approximately half of those approached agreed to participate. This secondary analysis was performed on a subset of variables collected at two time points, at intake or third trimester (social support from family and friends; expectations of infant care emotionality; SES) and at fourth postpartum week (PDS, enacted social support). The fourth-week postpartum data were collected for 68% of the adolescent mothers. Participant attrition was due to factors such as relocation, telephone service interruption, and change of telephone numbers.

Instruments

In keeping with previous research, SES was measured with a proxy or rating of the maternal grandmother’s formal education (Hannon & Luster, 1991; Luster & Dubow, 1990). The adolescent mother selected four categories (1 = grades 1-8; 2 = grade 9-12; 3 = vocational or some university; 4 = university degree; 5 = graduate degree). The proxy measure was used because many participating mothers had not completed their education and families of origin were on social assistance, which limited income variability.

Anticipated infant care emotionality, or the negative emotions the mother expects to feel if the infant continues to fuss or cry despite her care or interaction, was measured with an adaptation of the Infant Care Questionnaire (ICQ)

(Secco, 2002). The 22-item ICQ comprises three dimensions, mom and baby, responsiveness, and emotionality, and is designed to assess postpartum maternal sense of competence caring for and interacting with her infant. To capture anticipated infant care emotionality, the mother was asked to respond to ICQ items considering how she “expects” she would feel after her baby is born. The infant care emotionality dimension contains four 5-point Likert items anchored with the words *never* (1) and *always* (5). The mother rates her emotionality, or satisfaction or frustration, or both, with negative infant care issues such as crying and fussiness. Sample items include “I get frustrated when my baby cries” and “I don’t know how to satisfy my baby.” The ICQ dimensions were identified with factor analysis using postpartum data, and significant differences between older and younger adolescent mothers have been demonstrated (Secco, Ateah, Woodgate, & Moffatt, 2002). Just the infant care emotionality dimension was used in this study because previous relationships were reported with both depression-related parenting stress (Secco & Moffatt, 2003b) and performed parenting competence, measured as quality of cognitive stimulation in the home environment (Secco & Moffatt, 2003a). Internal consistency, Cronbach alpha coefficient, for the emotionality dimension was .79 for a sample of older mothers (Secco, 2002) and is .69 for the current study sample.

Social support from family and friends was measured with the Perceived Social Support From Family (PSS-Fa) and Perceived Social Support From Friends (PSS-Fr). These 20-item scales are designed to measure perception of adequacy of support, information, and feedback from two sources—family and friends (Procidano & Heller, 1983). Item response choices are “yes,” “no,” and “don’t know” to questions such as “My friends give me the moral support that I need” and “My family enjoys hearing about what I think.” Internal consistency reliability for the scales is high (.88-.90), and significant correlations have been reported between PSS-Fr and PDS, $r = -.43$, between PSS-Fa and self-confidence, $r = -.43$ (Procidano & Heller). For the current sample, the internal consistency alpha coefficient for the PSS-Fa was .91 and for the PSS-Fr .82.

Enacted social support was measured with the Inventory of Socially Supportive Behaviours (ISSB), a 40-item self-report of frequency of receipt of various forms of assistance (i.e., enacted or mobilized support of information, guidance, tangible and emotional support) during the previous month. The scale was developed inductively through content analysis of interviews with pregnant adolescents (Gottlieb, 1978). The mother rates the frequency of specific helping behaviors over the past 4 weeks (scale from 1 *not at all* to 5 *almost every day*). Internal consistency of the ISSB has been reported above .90; test-retest was reported at .88 for 2 days and from .63 to .80 for a 1-month period. A significant relationship between emotional support and performed parenting of adolescent

mothers has been demonstrated (Barrera, 1981; Secco & Moffatt, 2003a).

The revised Beck Depression Inventory (BDI) is a self-report scale that measures the presence and degree of depressive symptoms but does not specify clinical diagnosis. The BDI contains 21 clinically derived, 4-point ordered items ranging from 0 to 3 (Beck & Steer, 1993) to best describe feelings over the past 2 weeks and categorized as exhibiting mild, moderate, or severe symptoms of depression. Beck and Steer reported validity and reliability evidence for the BDI; high-internal consistency Cronbach alpha coefficients have been reported among samples of patients with different diagnoses, including mixed diagnosis (.86), major depressive disorder (.80), and dysthmic disorder (.79) (Beck & Steer). Reported test-retest measures range from .60 to .90 for nonpsychiatric samples; concurrent validity correlations with clinical ratings of depression ranged from .60 to .70. The BDI requires 5 to 10 minutes to complete (Beck & Steer). The internal consistency Cronbach coefficient of reliability for the current sample was .80.

Procedures

All procedures for the larger longitudinal study and this subsequent secondary analysis were approved by a university ethics board. Adolescent mothers who attended the two clinics for prenatal care were approached in the third trimester. A clinic staff member first provided a brief verbal description of the study and, for interested adolescents, a detailed verbal and written study description was provided by the researcher (M.L.S.). At intake, the researcher administered both the demographic form and prenatal research scales (infant care emotionality, perceived family and friend social support), which were completed in 15 to 20 minutes. At 4 weeks after delivery, the researcher made a home visit (approximately 0.5 hour long) and the adolescent mother completed additional scales (including BDI and enacted social support) (Table 2).

TABLE 2
Variables and Time of Measurement

<i>Third Trimester</i>	<i>Fourth-Week After Delivery</i>
Maternal	
Infant care emotionality	Depressive symptoms
Situational	
Income	Enacted social support
Perceived friend social support	Guidance
Perceived family social support	Emotional
	Tangible

Data Analysis

Descriptive analysis was conducted to describe the independent (SES, infant care emotionality, various forms of social support) and dependent variables (PDS). Correlations between the independent variables and PDS were assessed with Pearson correlation coefficients. Those variables significantly correlated with PDS were entered into the multiple regression model to determine the extent that they explained PDS. For all statistical analyses, the *p* level for significance was set at .05.

Results

Descriptive Results

Descriptive study means and standard deviations are shown in Table 3. Average prenatal infant care emotionality was 3.74 of the highest potential score of 5. Mean perceived family support, 11.74, was slightly lower than friend support, 12.63. The mean PDS score for adolescent mothers was 10.39 or just above the BDI “mild” BDI category. Over 40% (43.5%, *n* = 30) of the adolescent mothers scored above the cut score (10) and were categorized as exhibiting mild, moderate, or severe depressive symptoms. Average total enacted social support was 106.07 and subscale means were 30.00 (guidance), 39.52 (emotional support), and 13.54 (tangible assistance).

Relationships

Pearson correlations were computed for the third trimester and postpartum variables. Prenatal infant care emotionality was significantly related with perceived support from family ($r = .22, p = .05$) and from friends ($r = .30, p = .01$). Prenatal infant care emotionality ($r = -.35, p = .01$) and perceived adequacy of social support from family ($r = -.31, p = .01$) were both significantly correlated with fourth-week PDS (Table 4). More positive infant care emotionality and family support were associated with lower PDS. Postpartum depressive symptoms were not significantly related with total enacted support or any of the subscales (i.e., guidance, emotional or tangible support).

Predictors of Depressive Symptoms

A stepwise regression model was run with those independent variables significantly correlated with PDS (perceived social support from family and infant care emotionality). Socioeconomic status was included to control variation in both income and education. This model explained 26% of the total variance in PDS with only infant care emotionality and SES retained in the final model. Prenatal infant care emotionality was the strongest explanatory variable, 19% explained variance, while SES significantly explained 7% of the PDS variance.

TABLE 3
Descriptive Data for the Adolescent Mothers

	M	SD	n	Range	Minimum	Maximum
Third trimester measures						
Infant care emotionality	3.74	0.53	78	3.74	1.25	5
Family social support	11.74	5.93	78	20	0	20
Friend social support	12.63	4.36	78	20	0	20
Postpartum measures						
Depressive symptoms	10.39	7.03	69	34	0	34
Total enacted social support	106.07	23.00	61	97	60	157
Guidance support	30.00	8.20	61	39	14	53
Emotional support	39.52	10.14	61	43	17	60
Tangible assistance	13.54	3.27	61	15	6	21

Lower SES and negative infant care emotions are significant predictors of PDS for a Canadian, mixed-ethnicity sample of adolescent mothers.

Discussion

Mild PDS was experienced by 43.5 % of the adolescent mothers. This rate is somewhat lower than some reported

rates ranging from 47% (Logsdon et al., 2005) to 53% (Hay et al., 2003) and higher than at least one other rate of 29% (Birkeland et al., 2005). The percentage of adolescent mothers with at least mild PDS is higher than that reported for nonparenting adolescents at 30% to 40% (Compas et al., 1995). Rate differences may be due to variation in depression scales, sample size and characteristics, and timing of measurement. The mean PDS of 10.39 is quite comparable to that reported for a larger sample of adolescent mothers (i.e., 10.1) (Troutman & Cultrona, 1990).

TABLE 4
Correlations With Depressive Symptoms^a

	1	2
Third trimester variables		
(1) Infant care emotionality	—	
(2) Family social support	.22, .05 (78)	—
(3) Friends social support	.30, .01 (78)	
Postpartum variables		
(4) Postpartum depressive symptoms	-.35, .01 (69)	-.31, .01 (69)
(5) Tangible social support		-.20, .11 (61)

^aSample size varies with number of completed scales.

Family support was significantly related to infant care emotionality and PDS but was not a significant predictor of PDS.

Both anticipated infant care emotionality and social support from family were significantly related with PDS but not friend support. This finding is aligned with a report that lower perceived family support was related to greater PDS among a sample of nonpregnant female adolescents and male adolescents (Sheeber, Hops, Alpert, Davis, & Andrews, 1997). Interventions to improve family member's supportive behaviors may help prevent adolescents' depressive symptoms (Sheeber et al., 1997) both directly and indirectly through improving infant care emotionality. The significant relationships between enacted emotional and informational support and depressive symptoms are consistent with those reported for family support, depression, and child care stress (Beck, 2001; Sadler, Anderson, & Sabatelli, 2001).

While there are few comparisons in the literature, the infant care emotionality mean of 3.4 is similar to that of first-time, older mothers who reported little previous infant care experience (Secco, 2002). The positive correlations between anticipated infant care emotionality and both perceived friend and family support suggest that these forms of support have an enabling influence on anticipated infant care emotionality. The inverse relationships between anticipated infant care emotionality, perceived family support, and PDS suggest that prenatal family support has a positive influence on both expected infant care emotionality and reduction of PDS. The significant relationship of family support to PDS is aligned with previous research (Hay et al., 2003). However, the lack of significant relationships between enacted emotional and informational support and symptoms of depression is inconsistent with previous research (Chung & Yue, 1999; Seguin, Potvin, St-Denis, & Loiselle, 1999; Stuchberry, Matthey, & Barnett, 1998). Furthermore, the loss of a relationship between perceived family support and PDS in the stepwise multiple regression model suggests that anticipated infant care emotionality may have a more direct relationship with PDS than does family support. Further research could determine whether prenatal anticipated infant care emotionality is a predictor of PDS and a screening method to identify those adolescent mothers particularly vulnerable to PDS.

The multiple regression findings indicated that both SES and anticipated infant care emotionality significantly explained PDS. Significant relationships have been reported between income (Beck, 2001; Sales, Greeno, Shear, & Anderson, 2004) or financial strain, or both and depression for older mothers (Neter, Collins, Lobel, & Dunkel-Schetter, 1995). In fact, 75% of a sample of low-income, single mothers were reported to experience at least mild depressive symptoms (Peden, Rayens, Hall, & Grant, 2004). The strong, negative relationship between anticipated infant care emotionality and PDS is similar in strength to those reported for emotional problems and caregiver strain (Sales et al., 2004) and for parenting self-efficacy and depression (Birkeland et al., 2005). These findings suggest that anticipated emotions or self-efficacy, or both in infant care measured prenatally may be a strategy to identify adolescent mothers at risk for PDS. The finding that both perceived family and friend support failed to significantly explain PDS is inconsistent with previous research (Birkeland et al.; Logsdon et al., 2005). These discrepant findings may be due to sample differences, inclusion of SES in the current study, or differences in measures used, or all.

Implications for Nursing Practice

Study findings strongly suggest that prenatal anticipated infant care emotionality and SES factors are risk markers for PDS among adolescent mothers. Another group of researchers aptly noted that situational events as-

sociated with lower income and poverty, such as divorce and single parenting, likely predict depression more than income alone (Bramesfeld, 2006). Nurses caring for pregnant adolescents are advised to assess level of family support and to encourage family members to support the adolescent (Sheeber et al., 1997).

Future research is needed to determine appropriate interventions to promote positive prenatal expectations of infant care emotionality among adolescent mothers. The significant correlation between perceived social support from friends and infant care emotionality suggests that interventions to improve peer support may initiate more positive thinking around infant care. Nurses can involve adolescent peers in prenatal support and education for the pregnant adolescent. Peer support may enhance the adolescent mother's coping with challenges of infant care, especially infant crying and fussy behavior. Public health nurses help improve the adolescent mother's emotions and expectations about infant care and motherhood through education and supportive interventions directed at increasing knowledge about infant behavior and needs for care. Referral by public health nurses to respite programs and family resources settings are especially important for information and expertise support. Adolescent mother may need extra education about the meaning of infant behavior to decrease frustration if her infant is fussy or cries despite her care.

Limitations

Convenience sampling, recruitment from only two high-risk settings, and attrition of participants are limitations that diminish generalizability of study findings to other settings and adolescent mothers. Self-selection bias is a factor that operates when adolescents who chose to participate differ in some manner from the population of adolescent mothers. Consequently, generalizability of study findings outside the current sample to other communities, ethnic groups, and SES characteristics is limited. Another potential limitation is that some researchers no longer recommend use of the BDI to measure PDS (Gaynes et al., 2005). Furthermore, it is important to measure prenatal depressive symptoms to determine whether negative anticipated infant care emotionality is due to preexisting depressive symptoms or vulnerability to depressive symptoms. Additional research is needed to determine the role of vulnerability to depression (Dennis & Boyce, 2004) as becoming a mother is stressful and prenatal vulnerability likely contributes to PDS (Adams, 2002).

Conclusions

Unfortunately, few valid screening methods are available to measure vulnerability to depressive symptoms (Gaynes et al., 2005) during the prenatal period. This study suggests that nurses can consider prenatal anticipated

infant care emotionality and low SES as risk factors for PDS among adolescent mothers. These adolescent mothers can be referred to programs and more closely followed and monitored after delivery.

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