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Prevalence, Course, and Predictors of Emotional Distress in Pregnant and Parenting Adolescents

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This study examines trajectories and correlates of emotional distress symptoms in pregnant adolescents ($n = 203$) and nulliparous adolescents ($n = 188$) from economically disadvantaged communities over an 18-month period. For both groups, the prevalence of significant emotional distress exceeded expectation based on adolescent norms; however, the severity of symptoms did not differ between the 2 groups. Results from growth curve modeling revealed a significant decline in symptoms during the study period for both groups, but pregnant adolescents experienced a different pattern of decline. Also, certain interpersonal factors (e.g., history of physical maltreatment, partner support) appeared to play a more important role in the emotional well-being of pregnant and parenting adolescents relative to nulliparous adolescents. Implications for early identification and intervention are discussed.

Research on adolescent parenthood consistently indicates a link between early childbearing and negative outcomes for mothers and children. As adults, women who give birth during adolescence are more likely to report depressive symptoms, substance abuse, and domestic violence than are women who postpone childbirth (Fergusson & Woodward, 1999; Moffitt & the E-Risk Study Team, 2002). Adolescent mothers also display increased parenting problems, including unrealistic expectations about child development, heightened negativity during interactions, and higher rates of child maltreatment (for a review, see M. R. Moore & Brooks-Gunn, 2002). In addition, the children of teen mothers show more deficits in cognitive and social–emotional development than do the children of older mothers (K. A. Moore, Morrison, & Greene, 1997; Spieker, Larson, Lewis, Keller, & Gilchrist, 1999). Despite the association between teenage childbearing and adverse consequences, there is considerable variability in parental and child functioning within this population, and many teenage mothers successfully manage the challenges of parenting (Hess, Papas, & Black, 2002; Leadbeater & Way, 2001).

In light of this heterogeneity, researchers have focused on factors that may underlie variability in outcomes associated with young motherhood. Maternal mental health is one such factor that has received empirical attention (Black et al., 2002; Field et al., 2000; Hubbs-Tait, Osofsky, Hann, & McDonald, 1994). There are at least two reasons to expect high rates of mental health problems among adolescent mothers. First, pregnancy and parenting may lead to emotional distress (i.e., depression, anxiety, hostility) in adolescents because they constitute stressful life events (Cowan & Cowan, 2000), and stressful events predict increased distress during the teenage years (Garber, Keiley, & Martin, 2002; Ge, Lorenz, Conger, & Elder, 1994). If the demands of parenting are particularly stressful for adolescents because of their own developmental issues, emotional distress in this population may be relatively common. Alternatively, pregnancy may be an indicator of emotional distress in adolescents without necessarily playing a causal role. Because similar childhood experiences (e.g., poverty, academic difficulties, sexual abuse) predict both adolescent pregnancy and adolescent psychopathology (Coley & Chase-Lansdale, 1998), early childbearing may be a marker of a developmental trajectory in which emotional distress is likely to be present.

Although these reasons highlight the potential vulnerability of adolescent mothers, research in this area has yielded inconsistent results. Using national survey data, Deal and Holt (1998) found that adolescent mothers reported more symptoms of emotional distress than older mothers, with a striking 48% of African American adolescents and 28% of White adolescents between the ages of 15 and 17 years reporting substantial depressive symptoms.

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Smaller studies have reported similarly high rates of mental health problems in adolescent mothers, with prevalence estimates greater than those found in the general population (Black et al., 2002; Caldwell, Antonucci, Jackson, Wolford, & Osofsky, 1997; Leadbeater & Linares, 1992; Woodward & Fergusson, 1999). In contrast, the few studies that compared mental health in pregnant adolescent and nonpregnant adolescents from similar backgrounds did not find significant group differences (D. R. Moore & Florsheim, 2001; Troutman & Cutrona, 1990).

These results demonstrate how differences in the use of comparison groups across studies influence interpretations about the likelihood for mental health problems in adolescent mothers. To determine whether adolescent mothers are a particularly vulnerable group, more studies that include both pregnant and/or parenting and nulliparous adolescents (i.e., adolescents who have never given birth) from similar socioeconomic backgrounds are needed. Relatedly, few longitudinal studies have followed the course of symptoms in both pregnant and nulliparous adolescents. Although changes in symptoms following childbirth have been documented in studies of adolescent mothers (e.g., Leadbeater & Linares, 1992), the lack of a comparison group makes it unclear whether these changes are developmentally normative or specific to the experience of early motherhood. Longitudinal studies allow for exploration of stability and change in symptoms over an extended period and provide information about sequential patterns of emotional adjustment (e.g., postpartum escalations, chronically elevated symptoms). An increase in emotional distress seen only in adolescent mothers would provide stronger evidence that parenting has an adverse effect on adolescents' mental health. Similarly, differences in the frequency of distinct patterns of adjustment in parenting versus nulliparous adolescents would suggest periods of vulnerability for young mothers (e.g., postpartum distress). Because few studies have included a comparison group and prospective data, we still know little about young women's psychological response to parenthood or the immediate effects of early childbearing on teenagers' emotional adjustment (Coley & Chase-Lansdale, 1998).

In addition, although most studies in this area have focused on maternal depression, assessing emotional distress more generally may be particularly relevant for pregnant and parenting adolescents because of their developmental stage and pregnancy/parenting status. During adolescence, there is considerable overlap in depression, anxiety, and hostility (e.g., Carey, Finch, & Carey, 1991; Compas, Connor, & Hinden, 1998; Renouf & Harter, 1990; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000); consequently, assessing only depression may provide an incomplete picture of adolescents' adjustment. Furthermore, research indicates that maternal depression typically occurs with other negative emotions (Bosquet & Egeland, 2001) and that these emotional states have an additive effect on parenting difficulty (Lahey, Conger, Atkeson, & Treiber, 1994; Mammen, Kolko, & Pilkonis, 2002), negative child outcomes (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001; O'Connor, Heron, Glover, & the ALSPAC Study Team, 2002), and poorer newborn health (Ponirakis, Susman, & Stifter, 1998). Thus, examining emotional distress more broadly (i.e., depression, anxiety, hostility), rather than looking only at depressive symptoms, may provide a more complete assessment of the functioning of adolescent mothers.

Finally, it is also important to examine factors that may differentially predict emotional distress symptoms in pregnant and parenting adolescents relative to nulliparous adolescents. Identifying characteristics that predict heightened emotional distress symptoms from pregnancy through early parenthood is critical to enhance earlier detection of those most in need of services and to develop tailored interventions (Cowan & Cowan, 1995). For adolescents becoming parents, interpersonal factors may be especially important to emotional well-being because the transition to parenthood is a "developmental process that occurs within a relational context" (Florsheim et al., 2003, p. 71). From this perspective, interpersonal factors play a critical role in how the challenges of pregnancy and parenting are met (e.g., Feeney, Hohaus, Noller, & Alexander, 2002; Slade & Cohen, 1996). Consistent with this view, several studies have found that interpersonal factors such as social support, early caregiving experiences, and relationship conflict predict emotional distress among teen mothers (Caldwell et al., 1997; Florsheim et al., 2003; Kalil, Spencer, Spieker, & Gilchrist, 1998; Stevenson, Maton, & Teti, 1999). However, because these same factors are related to adolescent adjustment more generally (Joiner, 2002) and these studies did not include a comparison group, it is unclear whether interpersonal factors play a distinct role in the emotional adjustment of pregnant and parenting adolescents.

There are both theoretical and empirical reasons to believe relationships may have unique influence on pregnant and parenting adolescents. Theoretically, the meaning and relative importance of certain relationships are believed to change because of parenthood (Belsky & Rovine, 1990; Cowan & Cowan, 2000). These changes may be particularly important for adolescent parents because interpersonal issues are central to the normative developmental tasks of this age (Ketterlinus, Lamb, & Nitz, 1991). Longitudinal studies on adolescents' relationships during the transition to motherhood are limited, but they support the view that the quality of relationships changes during this time (Gee & Rhodes, 1999) and that these changes affect parenting behaviors (Florsheim et al., 2003). If the meaning and importance of relationships is different for adolescent mothers relative to nulliparous adolescents, then the impact of these relationships on emotional distress symptoms may also differ. For example, conflict between an adolescent and her mother may be more consequential in three-generation households in which responsibilities for the baby are shared. Similarly, relationships with male partners might have a greater influence on adolescent mothers if these partners also have ties to the baby. Comparing the impact of interpersonal factors on emotional adjustment in pregnant and/or parenting adolescents to nulliparous adolescents is an important but understudied line of inquiry for developing intervention efforts targeted to this population.

Current Study

In light of limitations in existing research, we intended the current study to provide a more complete assessment of adolescent adjustment during the transition to motherhood by use of a comparison group of nulliparous adolescents from the same socioeconomic background, statistical methods optimal for the study of change, an integrated measure of emotional distress, and an assessment of interpersonal factors as potential mechanisms of risk. The first objective of this study is to describe the prevalence and

course of symptoms of emotional distress among adolescent girls from the third trimester of pregnancy through 15 months postpartum and compare these to symptoms in nulliparous adolescents from similar backgrounds. This objective is accomplished through growth curve modeling and categorization of sequential patterns of adjustment. By use of growth curve modeling, it is possible to compare whether pregnant and/or parenting girls differ from nulliparous adolescents in initial symptoms of emotional distress measured during pregnancy, the amount of change in symptoms during the first years of parenthood, and the "shape" of symptom trajectories over time. As a result, this type of analysis can better demonstrate whether the experience of childbirth is associated with changes in levels of symptoms, above and beyond what is typical for girls at that age. By looking at sequential patterns of adjustment, it is possible for us to determine whether adolescent mothers are prone to emotional distress at specific times during pregnancy or the 1st year of parenting.

The second objective of this study is to determine whether the association between emotional distress and interpersonal factors differs for pregnant and/or parenting adolescents relative to nulliparous adolescents. This objective is accomplished by testing for group differences in the effect of four interpersonal factors, specifically mother–daughter relationship quality, history of physical maltreatment from family members, partner support, and partner stability, on initial emotional distress symptoms and changes in symptoms over an 18-month period. In addition, we examine interactions between pregnancy status and patterns of emotional distress on these four factors.

Method

Participants and Procedures

Participants included pregnant and/or parenting and nulliparous adolescent girls taking part in a prospective study on HIV/STD-risk behavior. Adolescents were recruited between June 1998 and March 2000 from 10 hospital clinics, community health care centers, and high school clinics in New Haven, Bridgeport, and Hartford, Connecticut. These clinics provided gynecological and obstetrical services in low-income, predominantly minority communities. Adolescents were recruited to the study by a referral from a health care provider, contact with an interviewer at participating clinics, a referral from a study participant, or advertising materials. To be eligible, adolescents had to be between 14 and 19 years old, have had sexual intercourse at least once, and not yet have any children. Of 534 eligible girls, 411 agreed to participate (77%). Adolescents who refused to participate in the study were older, $\chi^2(1, N = 534) = 10.29$, $p < .01$, and more likely to be White, $\chi^2(2, N = 534) = 9.70$, $p < .05$. Because this article compares emotional distress in girls making the transition to motherhood with emotional distress in nonparenting peers, adolescents in the nulliparous group at baseline who gave birth by the end of the study were excluded from analyses ($n = 20$). The final sample for this study included 203 pregnant adolescents and 188 nulliparous adolescents.

Participants completed four 90-min, face-to-face interviews over the course of 18 months. The baseline interview took place when the pregnant group was in the third trimester of pregnancy. Follow-up interviews were completed every 6 months thereafter. Sample sizes during the course of the study were as follows: Time 1 = 411 (100%), Time 2 = 318 (77%), Time 3 = 328 (80%), Time 4 = 365 (89%). Of the 411 participants, 386 (94%) had data from baseline and at least one follow-up point. Participants with missing data did not differ significantly from participants with complete data on any demographic or baseline measure of interest in this study.

This study was approved by Yale University's Human Investigation Committee and by Institutional Review Boards at all participating clinics. Informed consent was obtained from all study participants, and participation was completely voluntary and confidential. Parental consent was not obtained because state statutes allow adolescents seeking reproductive health care to independently consent to related research. Participants were paid $25 for each interview.

Measures

Emotional distress. Emotional distress was assessed using the Depression, Anxiety, and Hostility dimensions from the Brief Symptom Inventory (BSI; Derogatis, 1993). The BSI is a widely used self-report symptom inventory designed to assess psychological symptom patterns in psychiatric, medical, and community populations. Respondents rate the frequency of symptoms on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). Consistent with factor analytic studies indicating unidimensionality in BSI subscales (e.g., Piersma, Boes, & Reaume, 1994), domain scores were highly correlated (average $r = .68$). Scores on the Depression, Anxiety, and Hostility dimensions were summed as an indicator of global severity of emotional distress (18 items, total item $\alpha = .80$). It is important to note that these scales do not include any somatic items that may be confounded with pregnancy status. When used, T scores were computed on the basis of adolescent community norms for girls provided in the BSI manual (Derogatis, 1993). As suggested by Derogatis (1993), a cutoff T score of 63 (equivalent to the 90th percentile of the standardization sample) was used to define clinically significant symptom levels.

Parent–child relationship. The quality of girls' relationships with their primary caretaker was assessed with 24 items from the Mother–Daughter Communication Scale (MDC; Fox & Inazu, 1980). The MDC was designed to assess the parent–adolescent relationship in terms of warmth (e.g., "Your mother [or primary caretaker] and you are very affectionate with each other") and openness in communication (e.g., "Often you really don't know how to talk to your mother"). Responses are on a 5-point Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The wording of a few items was altered slightly to facilitate comprehension on the basis of suggestions of adolescents from similar backgrounds as those in the study who had participated in a pilot test of measures. In the present study, the identified primary caretaker was the biological mother for 82% of girls, another female relative (aunt, grandmother) for 14% of girls, and the father or another male adult for 4% of girls. Scores did not differ by relationship. Previous studies have documented validity of the measure (Fox & Inazu, 1980, 1982). In the present sample, Cronbach's $\alpha = .92$.

History of physical maltreatment. Childhood experiences of physical assault[1] were assessed through a modified version of the Physical Assault domain of the Conflict Tactics Scale (CTS; Straus, 1990). As in the CTS, participants were asked about the frequency of being slapped, hit by the hand, punched, beaten, kicked, hit with an object, choked, strangled, burned, or otherwise physically hurt during childhood using a 5-point scale that ranged from 0 (*not at all*) to 5 (*≥ 20 times*). Participants responded separately to questions about physical assaults from a parent or parental figure (e.g., stepparent, mother's boyfriend) and physical assaults from other adult family members. In addition to items included on the CTS, adolescents were asked about the timing, injury severity, context, and outcome of any reported incident. For the present study, the frequencies of different types of assault by a parent or adult family member that occurred prior to pregnancy were summed for a global measure of participants' experiences of physical assault from familial adults during childhood ($\alpha = .63$).

[1] Although the term *physical maltreatment* was used as a label for this variable, this measure reflects a range of adult-to-child physical violence acts, many of which may not constitute maltreatment. All interviewers were trained as mandated reporters of child abuse, and participants were informed at the start of the study and before administration of this measure of the limitations of confidentiality regarding suspected child abuse.

Partner stability. At each of the follow-up interviews, adolescents indicated whether they were involved in the same relationship as in the previous interview. The number of times (i.e., zero to three) an adolescent was with the same partner was used as an indicator of partner stability.

Partner support. Seven items were summed as an indicator of perceived support from a partner. These items assessed financial support (e.g., "How often does your boyfriend provide financial support?"), emotional support ("How often can you talk to your boyfriend about your problems?"), and conflict ("When you have a disagreement with your boyfriend, how often does he insult you, swear at you, or threaten you?") on a 5-point scale from 0 (*never*) to 4 (*always*). These items were asked within a larger interview about partner behaviors at each interview. Conflict items were reversed so that higher composite scores reflect a more supportive relationship. Both initial and average partner support were used depending on the analysis. Across the four time points, the average alpha level for the seven items was .74.

Demographics. Information about age, race, education, family income, and living conditions was obtained through a demographic questionnaire administered at each time point.

Data Analytic Plan

First, growth curve modeling using structural equation modeling (SEM) was used to generate parameter estimates of symptom trajectories for pregnant and/or parenting and nulliparous adolescents (for detailed discussion, see Duncan, Duncan, Strycker, Li, & Alpert, 1999). In SEM approaches to growth curve modeling, observed variables (e.g., BSI scores from the four time points) are used as indicators of two latent factors, an intercept factor and a slope factor, by setting all factor loadings from the intercept factor to the BSI scores to 1 and setting factor loadings from the slope factor to BSI scores to some metric reflecting time (e.g., factor loadings in a linear pattern might be fixed at 0, 1, 2, or 3). If the "shape" of individuals' trajectories generally do not follow a linear pattern, then the slope factor can take different metrics by fixing loadings accordingly or adding a latent factor reflecting a polynomial term. Once an appropriate model is established, the next step is to determine whether there is significant variance in intercept and slope parameters within a group of individuals. Significant variance in the intercept term indicates that study participants differ in symptoms initially, whereas significant variance in the slope terms indicates variability in how much individuals change in symptom levels during the period of study. If significant variance exists in intercept and slope terms, it is possible to explore factors that account for variability. AMOS 4.0 (Arbuckle & Wothke, 1999) was used to generate growth curve models using full-information maximum likelihood (FIML) estimation. FIML estimation generates parameter estimates based on all available data and has been shown to provide largely unbiased estimates in simulation studies of the effect of missing longitudinal data (Wothke, 2000).

Although growth curve modeling provides one way to examine an increase or decrease in symptoms of emotional distress at the individual level, change in a few people can be obscured in studies of community populations because most individuals remain relatively nonsymptomatic across time. Thus, we also used a categorical, clinical approach to explicitly examine teenagers who experienced categorical change in symptoms (i.e., from nonsignificant symptom levels to clinically significant symptom levels based on normative cutoff scores) during the course of the study. Specifically, participants were categorized into four patterns of emotional adjustment: no distress (normal T scores throughout the study), early distress (clinical-level T scores during pregnancy assessed at Time 1 only), late distress (normal T scores in pregnancy assessed at Time 1 but clinical-level T scores in the majority of follow-up assessments), and continual distress (clinical-level T scores at baseline and the majority of follow-up assessments). Differences in frequency of patterns for the two groups were tested using chi-square analyses.

To address the second goal of this study, we examined whether interpersonal factors are differentially associated with variability in symptoms in pregnant and/or parenting versus nulliparous adolescents. First, we tested for interactions between pregnancy status and interpersonal factors on emotional distress using SEM nested-model comparison for group differences (Bryk & Raudenbush, 2001). In nested-model approaches, the same model is generated for different groups (e.g., pregnant vs. nulliparous) with parameters of interest estimated simultaneously under two sets of conditions. In the default condition, parameters for the two groups are free to vary. In the alternative condition, a constraint is added forcing an estimated parameter for the two groups to be equal (e.g., effect of partner support on symptoms for pregnant girls = effect of partner support on symptoms for nulliparous girls). If the model in which parameters are constrained to be equal provides a significantly worse fit to the data than the unconstrained model, then the parameter of interest is not equivalent across groups, indicating an interaction effect.

Second, we ran a 4×2 multivariate analysis of variance (ANOVA) with adjustment pattern and pregnancy status as independent variables and interpersonal factors as dependent variables. Significant interactions indicate that interpersonal characteristics are differentially related to adjustment patterns depending on pregnancy and/or parenting status. Finally, hierarchical regression was used to provide an estimate of how much interpersonal factors present during pregnancy accounted for change in symptoms from the third trimester through the 1st year of parenthood for the pregnant group.

Results

Before conducting analyses, we analyzed data for normality and the presence of outliers using univariate and graphical approaches. Emotional distress variables were normally distributed. The history of physical maltreatment variable was positively skewed, so a log transformation was applied that improved normality (skewness = .17, SE = .13, kurtosis = −.83, SE = .27). In addition, multivariate analyses in which partner stability (0–3 scale) was used as a dependent variable were followed up with nonparametric methods to ensure consistent findings.

Prevalence and Course of Emotional Distress Symptoms

Demographic information about the 391 participants of this study is presented in Table 1. As shown, pregnant adolescents were more likely to live in households receiving public assistance. No other group differences emerged on adolescents' reports of demographic characteristics. Age and public assistance were used as covariates in all analyses. Mean scores for total BSI symptom scores for each time point are also presented in Table 1. The only significant group difference was at Time 2, with new mothers (average 4.1 months postpartum) reporting fewer symptoms than nulliparous adolescents. At the start of the study, 26% of the sample exhibited clinically significant symptoms; at the final assessment, 18% exhibited clinically significant symptoms. At all time points, the number of adolescents in the clinically significant range significantly exceeded the expected 10% based on standardization norms.

Next, growth curve modeling was used to determine whether pregnant and/or parenting teenagers differed from nulliparous adolescents in the course of symptoms from the third trimester through the first 15 months of parenthood. Before testing for intercept and slope differences between the two groups, it was

Table 1
Demographic Characteristics and BSI Scores for Pregnant and/or Parenting and Nulliparous Adolescents

Variable	Pregnant/parenting adolescents (n = 203)	Nulliparous adolescents (n = 188)	Test of group difference	p
Age, in years, *M*	17.4	17.2	$t(389) = 1.66$	.10
Ethnicity, %			$\chi^2(3, N = 391) = 5.79$	.14
White, non-Hispanic	10	17		
African American	41	40		
Latina/Hispanic	40	32		
Other/mixed	9	11		
Maternal education level, %			$\chi^2(3, N = 360) = 6.29$	.10
Less than HS	40	30		
HS degree	40	50		
Associate's degree	14	11		
Bachelor's degree	6	9		
Paternal education level, %			$\chi^2(3, N = 302) = 1.46$	.69
Less than HS	42	36		
HS degree	40	47		
Associate's degree	8	8		
Bachelor's degree	10	9		
Monthly reported household income, in dollars, *Mdn*	570	578	$z(370) = -0.48$	.68
Household received public assistance, %	21	12	$\chi^2(1, N = 388) = 5.76$	<.05
Emotional distress measures, *M* (*SD*)				
Time 1 BSI total	18.79 (12.96)	20.00 (13.35)	$t(389) = -0.90$	.34
Time 2 BSI total	14.10 (12.68)	18.14 (13.92)	$t(316) = -2.61$	<.01
Time 3 BSI total	15.76 (14.55)	17.56 (13.08)	$t(325) = -1.14$	.26
Time 4 BSI total	15.05 (12.64)	16.78 (12.55)	$t(362) = -1.20$	.21

Note. BSI = Brief Symptom Inventory; HS = high school.

necessary for us to determine whether both groups of adolescents could be modeled with the same function (e.g., linear, quadratic). A linear growth model with serially correlated error terms was first fit to BSI scores for the nulliparous group. This model provided an adequate fit to the data, $\chi^2(4, N = 391) = 6.80$, RFI = .98, root-mean-square error of approximation (RMSEA) = .06. The mean intercept was 20.17 ($SE = 0.97$, $p < .01$), and the mean slope was −3.24 ($SE = 1.01$, $p < .01$), indicating that, on average, this group of girls began with a BSI total score of 20.17 (T score equivalent = 57) and made a statistically significant, steady decline over the four assessment points to approximately 16.93 (T score equivalent = 54). There was significant variance (Var) in the intercept term (Var = 116.75, $SE = 23.13$, $p < .01$) but not the slope term (Var = 47.67, $SE = 36.49$, $p = .19$). In other words, although the group of nulliparous adolescents varied considerably in initial adjustment, the 3-point decrease appeared to be the norm for most young women in this group.

The same linear model was then tested for the adolescent mothers; however, this model did not provide a good fit to the data, $\chi^2(4, 391) = 20.52$, $p < .01$, RFI = .84, RMSEA = .14. The addition of a quadratic term did not improve fit. Consequently, a latent model was attempted in which the Time 1 factor loading was set to 0, the Time 4 factor loading was set to 1, and the intermediate factor loadings were freely estimated. Factor loadings for this model were as follows: Time 1 = 0.00 (fixed), Time 2 = 1.24, Time 3 = 0.81, Time 4 = 1.00 (fixed). This model provided a good fit to the data, $\chi^2(2, N = 391) = 0.34$, RFI = .99, RMSEA = .00. The mean intercept was 18.83 ($SE = 0.92$, $p < .01$), and the mean slope was −4.04 ($SE = .95$, $p < .01$), indicating that, on average, pregnant and/or parenting adolescents began with a BSI total score of 18.83 (T score equivalent = 56) and made a statistically significant decline to approximately 14.79 (T score equivalent = 53). Again, there was significant variance in the intercept term (Var = 111.15, $SE = 56.31$, $p < .01$) but not the slope term (Var = 45.97, $SE = 56.13$, $p = .41$), indicating that pregnant adolescents varied in initial emotional distress but not in how much symptoms declined during the study period. Parameter estimates and factor loadings for the two groups are presented in Figure 1.

In latent growth curve models in which the first loading is fixed to 0 and the last loading is fixed to 1, the slope value provides an estimate of the overall amount of change from baseline to the final assessment point, and intermediate factor loadings indicate the magnitude of overall change at each time point. In other words, a factor loading of 1.24 at Time 2 indicates that the change from Time 1 to Time 2 equals 124% of the total slope value (i.e., 124% of –4.04, or –5.01). The factor loadings (0.00, 1.24, 0.81, 1.00) and negative slope value (−4.04) in the growth model for pregnant adolescents indicate that pregnant teens experienced a relatively steep decline in symptoms from Time 1 to Time 2, after which symptom levels increased slightly. These results suggest that pregnant and/or parenting and nulliparous adolescents differ in the course of their symptoms over an 18-month period. Specifically, nulliparous adolescents experienced a steady decline in symptoms from the initial assessment until the final assessment, whereas pregnant adolescents experienced a rapid decline in symptoms

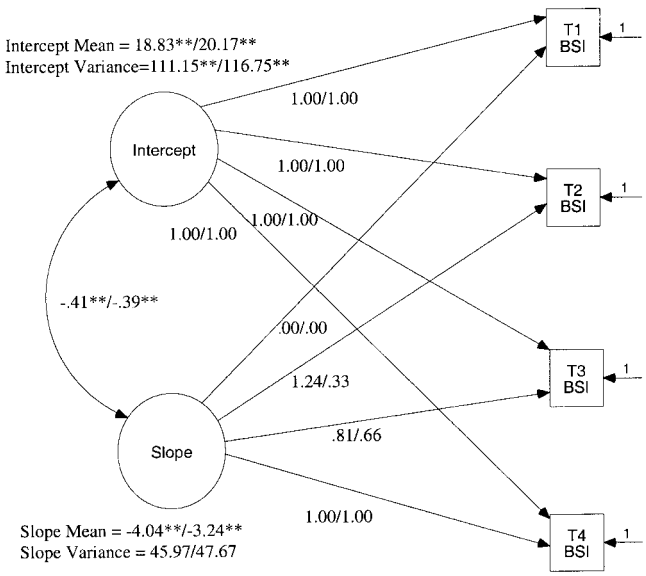

Figure 1. Standardized loadings and parameter estimates for unconditional Brief Symptom Inventory (BSI) emotional distress symptom trajectories in pregnant and/or parenting and nulliparous adolescents. Values before the slash represent parameter estimates for pregnant and/or parenting adolescents and values after the slash represent estimates for nulliparous adolescents. T1 = Time 1, T2 = Time 2, T3 = Time 3, T4 = Time 4.

after childbirth followed by a small increase in symptom levels. A graphical comparison of symptom trajectories for pregnant and/or parenting and nulliparous adolescents is presented in Figure 2 using T scores.

Because the two groups could not be modeled with the same function, we tested whether the intercept and slope values for the two groups differed in magnitude using SEM nested-model comparison for group differences as described in the *Method* section. Factor loadings defining the shape of trajectories for each group were maintained from the previous analysis. The models in which intercept or slope parameters were constrained to be equal for the pregnant and/or parenting and nulliparous groups were not significantly worse than the unconstrained model, indicating no significant group difference in intercept values, differential $\chi^2(10, N = 391) = 13.8$, $p = .18$, or slope values, differential $\chi^2(10, N = 391) = 12.5$, $p = .24$. Thus, although symptom levels followed a different course for the two groups, initial symptom levels and the amount of change in symptoms during the study period were the same.

The lack of variability in the slope estimates of the pregnant and/or parenting and nulliparous teens in this study indicates that the relative ranking of girls' emotional distress level remained similar over the study period. Although these results suggest minimal variability in the amount of change in symptoms experienced by this sample, change in a minority of individuals can be obscured when most individuals continually report low symptom levels. Of the 267 participants who were in the nonclinical range at the start of the study, 90% were still in the normative range at the final interview. In contrast, only 40% of individuals initially in the clinical range remained that way at the end of the study. Furthermore, individual change in T scores from Time 1 to Time 4 ranged from –50 to 40; thus, at least a minority of girls reported vastly different symptom levels at the beginning compared with the end of the study. To better examine these individuals, we categorized adolescents on the basis of their pattern of adjustment based on clinical cutoff scores of maladjustment. As Table 2 indicates, the frequency of adjustment patterns did not differ for pregnant and/or parenting versus nulliparous adolescents, $\chi^2(3, N = 366) = 1.8$, $p = .60$. In other words, there was no evidence to suggest that pregnant teens or new adolescent mothers were particularly vulnerable to emotional distress relative to nulliparous peers at any time from the third trimester of pregnancy through the 1st year of parenthood. In both groups, approximately 60% of adolescents did not report clinically significant distress at any time during the study period.

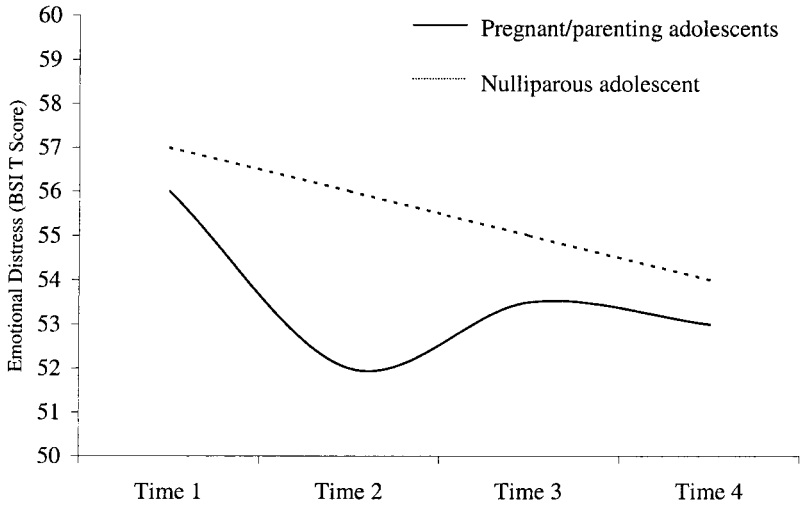

Figure 2. Trajectories of symptoms of emotional distress in pregnant and/or parenting and nulliparous adolescent females (T score equivalents). BSI = Brief Symptom Inventory.

Table 2
Percentage of Pregnant and/or Parenting and Nulliparous Adolescents Displaying Different Adjustment Patterns

	Pregnant/ parenting adolescents[a] (n = 186)		Nulliparous adolescents[a] (n = 180)		Total	
Pattern	n	(%)	n	(%)	n	(%)
No distress	120	(64.5)	109	(60.6)	229	(62.6)
Early distress	17	(9.1)	18	(10.0)	35	(9.5)
Late distress	21	(11.3)	17	(9.4)	38	(10.4)
Continual distress	28	(15.1)	36	(20.0)	64	(17.5)

[a] Only adolescents with data from at least one follow-up point were included.

Role of Interpersonal Factors

To address the second goal of this study, we next examined whether there was a difference in predictors of emotional distress symptoms between pregnant and/or parenting and nulliparous adolescents. Using nested model comparisons, we tested whether interpersonal factors accounted for the significant variability in intercept factors of growth curve trajectories for the two groups and whether group differences existed in the effect of these interpersonal factors on intercept values. A series of models in which predictor variables were individually constrained to be equal for pregnant and nulliparous adolescents were compared with a nonconstrained model. Overall, interpersonal factors predicted 24% of the variability in initial distress in pregnant adolescents and 21% of variability in initial distress in nulliparous adolescents.

Nested-model comparisons (see Table 3) revealed a significant differential chi-square value for mother–daughter relationship quality and partner support, indicating that the effect of these variables on symptoms differed for the two groups. As shown, mother–daughter relationship had a significantly smaller unique effect ($\beta = -.18$ vs. $\beta = -.37$) in pregnant adolescents when compared with nulliparous adolescents. In other words, although a more supportive mother–daughter relationship was associated with fewer distress symptoms in both groups, this relation was stronger for nulliparous adolescents. In contrast, perceived partner support had a significantly larger unique effect ($\beta = -.12$ vs. $\beta = .03$) on emotional distress for pregnant relative to nulliparous adolescents. In this case, a more supportive relationship with a partner was associated with fewer distress symptoms in pregnant adolescents; however, partner support and emotional distress were unrelated in nulliparous adolescents. In the overall model, a history of physical maltreatment had the strongest unique effect on distress symptoms in pregnant adolescents, whereas current mother–daughter relationship quality had the strongest unique effect for nulliparous adolescents

These results suggest an interaction between pregnancy status, interpersonal characteristics, and emotional distress at one point in time. However, a primary goal of this study was to take a longitudinal perspective on the interplay of these factors. Because there was not significant variability in slope parameters, a categorical approach was taken to look for possible interactions. Specifically, we used multivariate ANOVA with pregnancy status and adjustment pattern as independent variables and mother–daughter relationship quality, history of physical maltreatment, partner stability during the study, average perceived partner support during the study, and residential stability as dependent variables. Multivariate tests indicated an overall effect of pregnancy status, $F(4, 362) = 5.83$, $p < .01$, adjustment pattern, $F(12, 1086) = 5.32$, $p < .01$, and their interaction, $F(12, 1086) = 2.10$, $p < .05$. Mean scores and group effects are shown in Table 4.

Significant pregnancy status by adjustment pattern interactions were found for perceived partner support, $F(3, 365) = 2.62$, $p < .05$, and physical maltreatment, $F(3, 365) = 2.50$, $p < .05$, indicating that the relation between emotional adjustment pattern and these factors varied by pregnancy status (see Figure 3). In other words, of adolescents showing a particular adjustment pattern (e.g., continual distress), those who were pregnant and/or parenting differed significantly from nulliparous peers on these interpersonal characteristics. Post hoc analyses indicated that pregnant and/or parenting adolescents who experienced heightened emotional distress only during pregnancy (i.e., early distress group) reported particularly low levels of partner support throughout the study when compared with nulliparous adolescents showing the same adjustment pattern, $F(1, 34) = 9.44$, $p < .01$. In addition, pregnant and/or parenting adolescents who reported chronically elevated levels of distress (i.e., continual distress group) had experienced significantly more physical maltreatment during childhood than nulliparous adolescents showing the same adjustment pattern, $F(1, 63) = 4.08$, $p < .05$.

Finally, hierarchical regression was used to provide an estimate of the magnitude of effect of interpersonal factors present in pregnancy on overall change in emotional distress symptoms during the study period. As shown in Table 5, interpersonal factors present during pregnancy accounted for an additional 9% of the variance in Time 4 symptoms, above and beyond baseline symptoms. Childhood physical maltreatment was uniquely significant ($p < .05$), and mother–daughter relationship was marginally significant ($p = .06$).

Table 3
Chi-Square Differentials and Beta Weights From Nested-Model Comparisons of Group Differences in the Effect of Interpersonal Factors on Symptom Intercepts From Growth Curve Models

Predictor[a]	Pregnant/ parenting adolescents (n = 203) β	Nulliparous adolescents (n = 188) β	χ^2_{diff} (1, N = 391)[b]
Mother–daughter relationship	−.18**	−.37**	3.41*
History of family violence	.36**	.23**	1.89
Initial partner support	−.12*	.03	3.72*
Cumulative R^2	.24**	.21**	

[a] Model was tested with receipt of public assistance and age constrained to be equal for the pregnant/parenting and nulliparous groups. [b] Fit indices for the nonconstrained model were as follows: $\chi^2(28, N = 391) = 67.03$, $p = .11$, relative fit index = .98, root-mean-square error of approximation = .02.
* $p < .05$. ** $p < .01$.

Table 4
Mean (and Standard Deviation) Scores of Interpersonal Factors by Pregnancy Status and Emotional Adjustment Pattern

Dependent variable[a]	Emotional adjustment pattern: No distress (n = 229)	Early distress (n = 35)	Late distress (n = 38)	Continual distress (n = 64)	Total
Mother–daughter relationship					
Pregnant/parenting group	3.81 (0.61)	3.58 (0.57)	3.40 (0.88)	3.44 (0.72)	3.70 (0.67)
Nulliparous group	3.58 (0.62)	3.18 (0.88)	3.21 (0.59)	2.93 (0.78)	3.38 (0.72)
Total	3.71 (0.62)	3.38 (0.76)	3.32 (0.76)	3.15 (0.79)	3.54 (0.72)[b]
History of family violence					
Pregnant/parenting group	1.86 (2.07)	2.40 (3.32)	4.00 (3.83)	5.24 (4.68)	2.77 (3.31)
Nulliparous group	2.24 (2.81)	1.62 (1.11)	3.43 (2.56)	3.59 (3.30)	2.63 (2.84)
Total	2.06 (2.49)	1.99 (2.75)	3.75 (3.29)	4.29 (3.99)	2.69 (3.06)[c]
Partner stability					
Pregnant/parenting group	1.85 (1.06)	1.94 (1.02)	1.57 (1.12)	1.35 (1.16)	1.75 (1.09)
Nulliparous group	1.58 (1.07)	1.39 (1.09)	1.82 (1.01)	1.19 (0.98)	1.51 (1.05)
Total	1.72 (1.07)	1.66 (1.08)	1.68 (1.07)	1.27 (1.06)	1.63 (1.08)[d]
Partner support					
Pregnant/parenting group	3.51 (0.39)	3.18 (0.46)	3.46 (0.35)	3.29 (0.50)	3.44 (0.42)
Nulliparous group	3.55 (0.28)	3.55 (0.36)	3.58 (0.33)	3.42 (0.44)	3.53 (0.34)
Total	3.53 (0.34)	3.36 (0.45)	3.51 (0.35)	3.36 (0.47)	3.48 (0.38)[e]

[a] Age and public assistance were used as covariates. [b] This shows the significant effect of pregnancy status (F[1, 354] = 9.12, $p < .01$) and emotional distress pattern (F[3, 354] = 9.12, $p < .01$) in multivariate model. [c] This shows the significant effect of emotional distress pattern (F[3, 354] = 10.72, $p < .01$) and interaction (F[3, 354] = 2.50, $p < .05$) in multivariate model. [d] This shows the significant effect of emotional distress pattern (F[3, 354] = 3.55, $p < .05$) in multivariate model. [e] This shows the significant effect of pregnancy status (F[1, 354] = 8.72, $p < .01$), emotional distress pattern (F[3, 354] = 5.40, $p < .01$), and interaction in multivariate model (F[3, 354] = 2.62, $p < .05$).

Discussion

The purpose of this study was to obtain a clearer picture of emotional distress symptoms in adolescent mothers by comparing symptoms in pregnant and/or parenting adolescents and nulliparous adolescents from the same communities. In summary, we found that although pregnant and/or parenting adolescents reported heightened symptoms of emotional distress relative to adolescent norms, they were not more distressed than nulliparous adolescents from similar backgrounds. During the study period, both groups reported an overall decline in symptoms; however, the pattern of decline differed. Nulliparous adolescents experienced a steady linear decline, whereas pregnant and/or parenting adolescents experienced a relatively steep decrease in symptoms from the third trimester to 3-months postpartum, followed by a small increase in symptoms over the next year. In addition, we found that a history of physical maltreatment and limited partner support emerged as particularly important in the emotional well-being of pregnant and parenting adolescents.

Prevalence and Course of Emotional Distress Symptoms

Consistent with extant literature, the pregnant teenagers in our study reported heightened symptoms of emotional distress at all time points when compared with norms for adolescent girls. Among pregnant teenagers in our study, 22% reported clinically significant symptoms during their third trimester and 16% reported clinically significant symptoms when their children were approximately 15 months old. However, these young women did not report more emotional distress than nonparenting adolescents from the same communities. Instead, symptoms were elevated in both groups. Our findings corroborate those of Troutman and Cutrona (1990), who found that low-income pregnant and nonpregnant adolescents reported elevated but equivalent levels of depression on the basis of formal diagnostic criteria. Similarly, D. R. Moore and Florsheim (2001) found no difference in symptoms in pregnant and nonpregnant girls in a study comparing White, middle-class, teenage couples; in addition, they found the prevalence of psychopathology among pregnant girls was no greater than expected on the basis of adolescent norms. Results from these three studies suggest that the risk for emotional distress in adolescent mothers may be due primarily to socioeconomic conditions and the cofactors associated with economic disadvantage rather than to the experience of early childbearing.

Our findings are somewhat contradictory to studies that have indicated that adolescent mothers are a particularly vulnerable group. Several of these studies drew conclusions from correlations between age and mental health symptoms in the general population of mothers. However, cross-sectional studies that compare symptom levels in adolescents and adults can be misleading because younger and older mothers differ on a host of factors, most notably socioeconomic characteristics, and these factors may underlie observed associations between symptoms and age (Deal & Holt, 1998). Still other studies have based conclusions about the effect of early childbearing on comparisons of adult women who became mothers in adolescence versus adult women who first became mothers in their 20s or 30s (e.g., Moffitt & the E-Risk Study Team, 2002). The group differences generally seen in these studies may indicate that teenage childbearers become more distressed during adulthood. As suggested by others (e.g., Jaffee, Caspi, Moffitt, Belsky, & Silva, 2001), early childbearing may set in motion a series of life events (e.g., lower educational attainment, greater partner instability) that in accumulation result in increased mental health problems over time. However, our results suggest that these

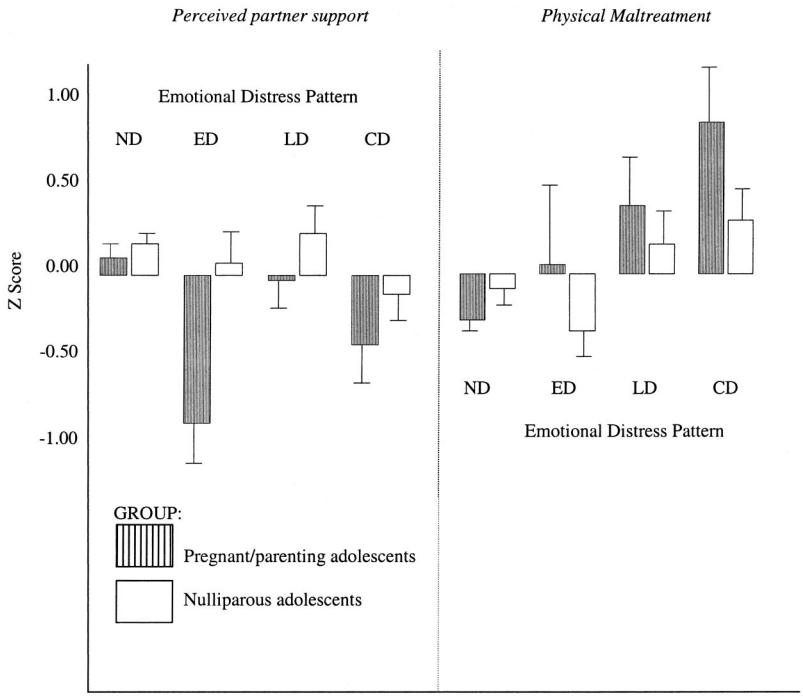

Figure 3. Standard scores of perceived partner support and history of physical maltreatment in pregnant and/or parenting and nulliparous adolescents with different emotional adjustment patterns (mean and standard error). ND = no distress; ED = early distress; LD = late distress; CD = continual distress.

mental health problems are not immediately evident as a result of early parenthood.

In addition to looking at the prevalence of symptoms, we also examined the course of symptoms in adolescents making the transition to parenthood relative to adolescents from the same communities. We did not find a group difference in the overall amount of change in symptoms during the study period, again suggesting that the transition to motherhood is not directly or immediately associated with increased distress in urban adolescents. For both groups of adolescents, symptoms were highest at the earliest stage of the study and decreased over the 18-month period. Studies of trajectories of depression typically show a pattern of increase in symptoms for girls during middle to late adolescence (Garber et al., 2002; Ge et al., 1994). Our results may have differed because we used a measure assessing symptoms broadly, with fewer items specifically gauging depression, or because we purposefully excluded somatic symptoms in this study because of the confound with pregnancy status (e.g., eating and sleeping changes). Relatedly, a different pattern may have emerged because of demographic differences between this study sample and the normative sample of the BSI. Participants in this study were primarily minorities living in urban settings, whereas the BSI standardization sample is comprised largely of White participants from working-class families. Although measurement issues cannot be ruled out, it is also possible that the pattern seen in our study is more typical in minority or urban populations. Few longitudinal studies have focused specifically on the course of symptoms in inner-city adolescent girls; however, cross-sectional studies comparing low-income girls at early versus late adolescence suggest that the early teenage years may be a more difficult developmental period for minority girls (e.g., Bachanas et al., 2002).

Although pregnant and/or parenting and nulliparous adolescents showed the same amount of decline in symptoms during the study period, the pattern of decrease was not the same for the two

Table 5
Hierarchical Regression Predicting Change in Brief Symptom Inventory (BSI) Scores From Time 1 to Time 4 From Interpersonal Factors During Pregnancy for Pregnant Group (n = 182)

Block and variable	Entry β	Final β	ΔR^2	Adjusted R^2	Final model
Block 1			.21**	.21**	
BSI scores at Time 1	.45**	.35**			
Block 2			.01	.20**	
Age	−.05	.00			
Public assistance	.03	.01			
Block 3			.09**	.27**	$F(6, 176) = 10.14$**
Mother–daughter relationship		−.14†			
History of family violence		.25*			
Initial partner support		−.02			

† $p < .10$. * $p < .05$. ** $p < .01$.

groups. Specifically, nulliparous adolescents went through a steady linear decline, whereas pregnant adolescents experienced a steeper decrease in symptoms from the third trimester to 3 months postpartum, followed by a small increase in symptoms. A similar decrease in symptoms in the early postpartum period has been found in longitudinal studies of adolescent (Leadbeater & Linares 1992) and adult (Matthey, Barnett, Ungerer, & Waters, 2000) mothers. Our findings suggest that having a newborn may subjectively be a positive experience for many adolescent girls. Researchers often focus on negative aspects of teenage childbearing because of associated economic and societal costs. However, it seems likely that many adolescent mothers—like new mothers in general—experience excitement and joy at having a newborn. Indeed, qualitative studies have documented the pleasure in parenting experienced by many young women (Leadbeater & Way, 2001). Furthermore, the postpartum period may be a time of increased attention from family members and peers (Garcia-Coll, Escobar, Cebollero, & Valcarcel, 1989). Our results suggest that any improvement in emotional well-being relative to peers is temporary, however, as the two groups were no different by 9 months postpartum.

Role of Interpersonal Factors

Interpersonal factors were differentially related to emotional distress symptoms in pregnant and/or parenting adolescents compared with nulliparous adolescents. In terms of initial emotional distress, a history of physical maltreatment was associated with increased symptoms in both groups of adolescents. Similarly, a more distant mother–daughter relationship was related to increased symptoms in both groups; however, the magnitude of effect was significantly larger for nulliparous adolescents. In contrast, the relation between current partner support and symptoms was significantly larger for pregnant and/or parenting adolescents. Pregnant adolescents involved in romantic relationships perceived as less supportive reported greater emotional distress, whereas partner support and emotional distress were unrelated in the nulliparous group. Overall, these results suggest that relational figures may play a different role in the emotional adjustment of pregnant and/or parenting versus nulliparous teenagers. Specifically, parental relationships may play a lesser albeit still important role for pregnant adolescents as compared with nulliparous adolescents, and partner relationships may take on increased importance. Most adolescents undergo a normative transition in which the influence of parental figures decreases somewhat as the influence of peers and romantic partners increases (Allen & Land, 1999). Results from this study are consistent with the idea that this transition is more pronounced in teenagers who become mothers (Gee & Rhodes, 1999; Grant et al., 2002).

Our longitudinal approach to the relation between pregnancy status, emotional distress, and interpersonal factors revealed similar differences. In particular, perceived partner support and history of physical maltreatment were differentially related to emotional distress patterns in pregnant and/or parenting versus nulliparous adolescents. Low partner support was characteristic of adolescent mothers reporting distress only during pregnancy. However, this group was no more likely to end their relationship during the study period, suggesting a tendency to stay in relatively unsatisfying romantic relationships. For this group of young women, the lack of a supportive partnership may have increased ambivalence about pregnancy, resulting in heightened but transient symptoms. Although the limited duration of symptoms in this group may reduce the apparent need for services, emotional distress during pregnancy is associated with adverse birth outcomes (Orr, James, & Prince, 2002). Thus, addressing even brief symptoms in pregnant teens is important. These results suggest that a focus on romantic relationships with this population is important (e.g., Florsheim et al., 2003). In addition, as symptoms may be transient, repeated brief screening of emotional distress during prenatal care visits may be beneficial.

Having a history of physical maltreatment from adult family members was also differentially related to emotional distress symptoms in pregnant and/or parenting adolescents as compared with nulliparous adolescents, with group differences most evident among teenagers reporting ongoing emotional distress. Overall, adolescent mothers did not experience more maltreatment than nulliparous adolescents; however, among the group of adolescents reporting continual emotional distress, adolescent mothers reported significantly more maltreatment than their peers. These results suggest that a different set of risk factors for emotional distress may be influential in the lives of pregnant and/or parenting adolescents relative to nulliparous adolescents.

Among pregnant adolescents, experiences of physical maltreatment uniquely predicted change in emotional distress symptoms from pregnancy to 15 months postpartum. Moreover, a history of physical maltreatment predicted difficulty in adolescents' transition to motherhood beyond the effect of the current parent–daughter relationship. Although longitudinal studies have found that the quality of pregnant adolescents' relationships with parents during pregnancy predicts subsequent adjustment (e.g., Hess et al., 2002; Florsheim et al., 2003), few studies have simultaneously considered current relationships with parents and relational histories with parents and other familial adults. From an attachment perspective, early relationships may be particularly important during the transition to parenthood because they influence how individuals conceptualize caregiving relationships (Bowlby, 1988). If representations of caregiving relationships are characterized by negativity or ambivalence because of experiences of violence from adult family members, a young woman's psychological response to parenthood may be jeopardized (Brophy-Herb & Honig, 1999). The relative importance of physical maltreatment from family members in this study also may reflect the importance of adults other than the primary caretaker on child development. These relationships may be particularly relevant in the lives of urban, minority youth (Coley, 1998; Hirsch, Mickus, & Boerger, 2002) and, therefore, reflect an important line of inquiry for researchers concerned with adolescent parenthood. Overall, these results suggest that interventions addressing experiences of physical violence from immediate, extended, and surrogate family members may be useful for pregnant teenagers in general. In addition, populations with a history of abuse and an increased likelihood for early pregnancy (e.g., adolescent girls in foster care) should be targeted for services at an early age.

Limitations and Strengths

Interpretations from this study must be made in the context of several limitations. First, we do not know whether group differences between pregnant and/or parenting and nulliparous adolescents preceded or resulted from pregnancy, as this study did not begin until the pregnant participants were in their third trimester. Second, our comparison group of nulliparous adolescents may not be representative of urban adolescent girls in general. Because we wanted a sexually active group living in similar communities as pregnant participants, the comparison group was recruited from the same primary health care clinics. These participants had various reasons for being at the clinics (e.g., to obtain birth control, concerns about STDs), and some of these reasons may make these young women different from other sexually active adolescents in the community (e.g., girls actively seeking birth control may be more responsible, girls with STDs may engage in more high-risk behavior). Relatedly, the increased refusal rate of older, White adolescents may limit generalizability of findings. Finally, the self-report measure of symptoms used in this study is subject to response bias and likely led to a higher number of "clinical cases" than would be obtained through formal diagnostic criteria. Having multiple measures of symptoms from different informants would provide a more complete picture of adolescent functioning.

Despite these limitations, this study has several noteworthy strengths. First, few studies have obtained prospective data at multiple time points from both pregnant and/or parenting and nulliparous adolescents in urban communities. Consequently, this study provides a unique developmental perspective on emotional distress in economically disadvantaged adolescent mothers, a group generally considered at high risk for negative outcomes. Second, we know of no studies that have used growth curve modeling to examine trajectories of symptoms in adolescents making the transition to motherhood. This analytic strategy is preferable when examining change within individuals (Duncan et al., 1999). Finally, by using a comparison group of nulliparous adolescents from the same background, this study provides a clearer understanding of unique interpersonal aspects of emotional distress in adolescent mothers. Such information is essential for designing appropriate intervention and prevention strategies.

Conclusions

Our results suggest that for most adolescent mothers the risk for emotional maladjustment may be due to socioeconomic circumstances existing prior to pregnancy or stressors that accumulate following childbirth. Nonetheless, providing mental health services to pregnant and parenting adolescents should still be a priority, as the lives of these young women are intertwined with the developmental course of their children. Our findings highlight the potential usefulness of interventions with an interpersonal emphasis for emotionally distressed pregnant and parenting adolescents (e.g., Brophy-Herb & Honig, 1999; Field et al., 2000; Spinelli & Endicott, 2003), although treatment-outcome studies focusing on this population are scarce. In addition, services should be targeted toward the subset of pregnant adolescents for whom the transition to motherhood is likely to be difficult; namely, those with a history of physical maltreatment or limited partner support. Targeting services may be best accomplished by integrating programs that focus on the quality of pregnant adolescents' current and early relationships into the settings in which these girls are already involved, such as primary health care clinics and schools. Reducing the negative outcomes associated with adolescent motherhood will require a broad commitment to prevention and treatment. The complex mental, physical, and developmental needs of pregnant and parenting adolescents must all be addressed to promote optimal outcomes for adolescent mothers and their children.

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