Psychopathology in Adolescent Mothers and Its Effects on Mother-Infant Interactions: A Pilot Study

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Objective: This study assessed adolescent maternal psychopathology and its relation to the quality of mother-infant interactions.

Method: Twenty-one mother-infant pairs recruited from an adolescent medicine clinic were assessed for socio-demographic background, psychosocial adversity, conduct disorder, alcohol or substance dependence, and depression. Dyads were videotaped during free play and their interactions rated using the Crittenden Child-Adult Relational Experimental (CARE) Index.

Results: A large proportion of mothers exhibited psychopathology. Severity of maternal depression correlated positively with maternal controllingness and infant difficulty. Severity of maternal antisocial history correlated positively with maternal unresponsiveness and infant passivity.

Conclusion: Though preliminary, this work suggests that adolescent maternal depression and antisocial history have different effects on the quality of mother-infant interactions. Researchers and clinicians interested in adolescent parenting should consider psychopathology as a contributing variable to the quality of mother-infant interactions.

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Key Words: adolescent mothers, mother-infant interactions, depression, conduct disorder

The contribution of psychopathology to the quality of adolescent mother-infant interactions is a largely unexplored area of research. Several recent reviews on the mental health of adolescent mothers, including that by Trad (1), discuss psychological dysfunction as an important variable affecting the quality of dyadic relationships. However, few studies have rigorously assessed how different types of psychopathology in adolescent mothers specifically may affect dyadic interactions. The goals of this pilot study were to assess teen mothers for symptoms of conduct disorder, alcohol or substance dependence, and depression and to compare mother-infant interactions in these subjects with those who did not exhibit such psychopathology.

Though a very heterogeneous population, adolescent mothers as a group are at significant risk of psychopathology during their early child-raising years. A review of the literature yielded several studies that examined the prevalence of depressive disorders in postpartum adolescent mothers. Troutman and Cutrona (2) found that among primiparous teenagers aged 14 to 18, six percent exhibited major depression and 20% were diagnosed with minor depression at 6 weeks postpartum. A study by Colletta (3) found that 54% of adolescent mothers of 1- to 3-year-olds met criteria for adult depression. While the interactional effects of depression have been well studied in adult mothers and their infants, such effects have not been well explored in adolescent mother-infant dyads specifically. Recent work by Leadbeater and Bishop (4), however, has found postpartum depression to be a significant predictor of difficult adolescent mother-infant interactions and subsequent child behaviour problems in a sample of inner city African American and Puerto Rican dyads.

As a group, adolescent mothers also have higher than expected rates of conduct disorder, since this diagnosis is itself a major risk factor for early pregnancy (5). One study found that over a third of teen mothers met criteria for conduct disorder (6). In a sample of adolescent females referred by a psychiatric department, Kovacs and others (7) found that 54.8% of 83 girls with conduct disorder became pregnant in adolescence compared with only 12% of girls with depressive disorders or other psychiatric diagnoses. Another study by Serbin and others (8) found that women with histories of
interactional patterns across several different types of maternal psychopathology and hypothesized that the quality of dyadic interaction would be inversely related to the severity of adolescent psychopathology, especially antisocial history.

In offspring, the initial signs of what later becomes conduct disorder have been documented as early as age 3 (13,14). This suggests that some etiological factors for this disorder are present in the first 3 years of life. While twin and adoption studies have found a genetic component to the transmission of conduct disorder, they have also found shared environmental effects (15,16). Thus the quality of the early mother–child relationship may be an important environmental variable mediating the development of conduct disorder in offspring and is an important area of study. Furthermore, a relatively specific link has been found between the occurrence of antisocial personality disorder in parents and in offspring (12–16). Based on this finding of diagnostic specificity across generations, we wanted to explore not only whether antisocial mothers had generally impaired interactions with their infants, but also whether those interactions differed qualitatively from those of mothers with other types of psychopathology.

Maternal attachment organization and psychosocial status also are relevant contributors to the quality of adolescent mother–infant interactions. A recent review by Ward and Carlson (17) explored pregnant teenagers’ attachment organization and subsequent maternal sensitivity, among other measures. They found that the teenagers’ attachment organization did predict subsequent maternal sensitivity in interactions with their infants. In this study, however, maternal psychopathology was not assessed as a potential contributing variable. As a group, adolescent mothers are at increased risk for numerous psychosocial stressors that may also adversely affect parenting (18). In order to identify risk factors specific to parental psychopathology, adolescent mothers without psychopathology served as a useful high-risk control group.

**Method**

**Subjects**

Subjects were recruited over a 5-month period from the adolescent pavilion at the Montreal Children’s Hospital. This site provides a specialized obstetrics clinic for pregnant teenagers and postpartum follow-up for the mothers and babies by a pediatrician, nurses, and social workers with expertise in the care of adolescents. All teen mothers consecutively attending the clinic with infants between 2 and 24 months of age were included in the study. Summary statistics of demographic and background data are presented in Table I.

**Procedure**

Each mother was asked by the pediatrician if she wished to participate in the study. Of those approached, 87% participated in the study, and these mothers received a general

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Distribution</th>
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<tbody>
<tr>
<td>Mothers (n = 21)</td>
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<tr>
<td>Mean age (range)</td>
<td></td>
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<tr>
<td>At interview</td>
<td>17.7 (15–20)</td>
</tr>
<tr>
<td>At birth</td>
<td>16.7 (14–18)</td>
</tr>
<tr>
<td>Race (%)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>52</td>
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<tr>
<td>Black</td>
<td>29</td>
</tr>
<tr>
<td>Other</td>
<td>19</td>
</tr>
<tr>
<td>Marital/cohabitation status (%)</td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>90</td>
</tr>
<tr>
<td>Married or living with a man</td>
<td>10</td>
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<tr>
<td>Where living (%)</td>
<td></td>
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<tr>
<td>With parents</td>
<td>33</td>
</tr>
<tr>
<td>Own apartment/house</td>
<td>57</td>
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<tr>
<td>With other relatives</td>
<td>5</td>
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<tr>
<td>In group home</td>
<td>5</td>
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<tr>
<td>Education (%)</td>
<td></td>
</tr>
<tr>
<td>Attending school</td>
<td>24</td>
</tr>
<tr>
<td>Graduated</td>
<td>24</td>
</tr>
<tr>
<td>Dropped out/suspended</td>
<td>52</td>
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<tr>
<td>Abuse or placement during childhood (%)</td>
<td></td>
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<tr>
<td>Physical abuse</td>
<td>52</td>
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<tr>
<td>Sexual abuse</td>
<td>48</td>
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<tr>
<td>Placement</td>
<td>62</td>
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<tr>
<td>Receiving welfare (%)</td>
<td>90</td>
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<tr>
<td>Primary caregiver (%)</td>
<td>100</td>
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<tr>
<td>Fathers (n = 21)</td>
<td></td>
</tr>
<tr>
<td>Criminal activity/arrests (%)</td>
<td>67</td>
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<tr>
<td>Do not see or support infant (%)</td>
<td>48</td>
</tr>
<tr>
<td>Infants (n = 21)</td>
<td></td>
</tr>
<tr>
<td>Mean age (range in months)</td>
<td>10.6 (2.5–23.5)</td>
</tr>
</tbody>
</table>

childhood aggression were at increased risk of childbirth between ages 14 and 20 and that the adolescent mothers’ childhood histories of aggression predicted an unresponsive style of parenting with their toddlers. We found no other studies in the literature exploring correlations between adolescent conduct disorder symptoms and the quality of mother–infant interactions. Increasing severity of antisocial behaviour has been found to correlate with an increased risk of coexisting emotional disorders as well. In adolescence, conduct disorder, substance abuse, and depressive and anxiety disorders commonly co-occur (9,10), and approximately one-third of those with conduct disorder go on to develop adult antisocial personality disorder (11,12). Thus comorbidity and the developmental trajectory of these disorders increase the likelihood that adolescent mothers will exhibit some form of psychopathology during their early child-raising years. In this pilot study, we compared...
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Measures

The mothers were interviewed using portions of the National Institute of Mental Health (NIMH) Diagnostic Interview Schedule (DIS) (19), a fully structured psychiatric interview. This instrument determines the presence of current and lifetime major psychiatric disorders by DSM-III-R criteria. Mothers were assessed for conduct disorder, adult antisocial personality disorder, and psychoactive substance abuse and dependence. The antisocial personality disorder section of the DIS assesses 12 of the 13 DSM-III-R conduct disorder symptoms as well as adult antisocial personality disorder criteria. This instrument has been found to be reliable for the assessment of conduct disorder, major depression, and other psychiatric diagnoses in adolescent girls (5). Conduct disorder as assessed with the DIS in adolescent girls also predicted a poor outcome over a 3- to 5-year period (5). It has been used in another study of conduct disorder in mothers with prevalence rates and substance abuse comorbidity similar to those found in this study (6).

The Edinburgh Postnatal Depression Scale (EPDS) was used to assess current depressive symptomatology. This instrument was chosen among several standardized scales because it is specifically designed and validated for use with postpartum women and has demonstrated acceptable sensitivity, specificity, and positive predictive value in community samples (20). It is also a brief, 10-question instrument, thus enabling its use as part of an already time-consuming interview for these mothers. Its brevity, ease of administration, and scoring also make it a cost-effective and practical screening tool with applicability in a variety of primary care settings. Because the biological fathers were not usually available to interview, the mothers were asked a standard set of questions regarding paternal histories of arrests, criminal activity, problem drug or alcohol use, and current contact with the infant.

Measures of mother–infant interaction. The assessment of mother–infant interactions was limited by 3 constraints. First, the instrument chosen had to be brief because mothers and infants were assessed in the context of clinic visits. Second, the instrument had to be reliable and valid across the age range of the infants (2.5 to 23.5 months). Third, based on chart reviews and discussion with the clinic director, we expected a wide range of parenting styles, from sensitive to maltreating. We needed, therefore, an instrument that had been validated for use with infants in the 2- to 24-month age range. Finally, the semistructured play setting used for this assessment requires minimal instructions to administer and takes only 5 minutes of the subjects’ time. The mothers were asked to play with their infants as they would at home: a blanket on the floor with toys appropriate for a wide range of ages was provided. The mother and infant were videotaped playing for 5 minutes. The videotape was rated using the CARE index by a psychologist (SH) trained by Crittenden in the use of the instrument. This rater was blind to all other information regarding the mothers and infants (including diagnoses).

The CARE index assesses patterns of mother–infant interactions on 3 dimensional categories: sensitivity, controlling, and unresponsive. While separate scores are given to mother and infant, the ratings are ascribed in the context of the other’s behaviour. Mothers are rated in 7 different areas (facial expression, vocal expression, position and body contact, expression of affection, pacing of turns, control, and choice of activity). Mothers are given scores for each area that must add to 2. For example, they may be fully sensitive (2 for sensitivity, 0 for unresponsive, and 0 for controlling), unresponsive (0 for sensitivity, 2 for unresponsive, and 0 for controlling), or controlling (0 for sensitivity, 0 for unresponsive, and 2 for controlling). Combinations of these scores are also possible, for example, 0 for sensitivity, 1 for unresponsive, and 1 for controlling. The optimal score is 2 for sensitivity in all 7 areas (or a total score of 14). The most negative scores are either 14 for controlling (with 0 for both sensitivity and unresponsive) or 14 for unresponsive (with 0 for both sensitivity and controlling). Similarly, the infant interactions are rated on 4 dimensions, cooperative, difficult, compulsive–compliant, and passive, with a score of 14 on the cooperative measure being optimal. While the infant and mother ratings are mathematically independent, previous work has found strong correlations between the following mother and infant dimensions: sensitivity and cooperation; controlling and difficult; controlling and compulsive–compliant; and unresponsive and passive (21).

Other family environment measures. Current living, financial, and caregiving arrangements in the family were assessed using a list of standard questions devised for this study. Reports of physical or sexual abuse were obtained, as were maternal histories of youth protection involvement, placement, or foster care. The medical charts of mothers and babies were reviewed for evidence of neglect or physical and sexual abuse as documented by medical or social work staff.

Analyses

A lifetime scale of antisocial behaviour for the mother was created by adding the number of symptoms indicating antisocial behaviours before age 15 from DSM-III-R
Severity of maternal EPDS scores. The severity of maternal controllingness, baby difficulty, and the sensitivity alone. Significant positive correlations were found maternal unresponsive and controlling behaviours rather than informative to examine the specific correlations with unresponsive or controlling or both. For this reason it is who are not rated as optimally sensitive are rated as interactional measures. It is important to note that mothers antisocial history, current depression, and the CARE index ratings, and EPDS scores. A sample size of 21 pairs is small and can detect only correlations greater than 0.5 at the 5% level of significance in a one-tailed test with a power of 80% (22). The purpose of this pilot study was to see whether any sizeable correlations existed as a basis for a more extended study and to provide explicit hypotheses for formal testing. It was decided prior to the study that correlations explaining 10% of the variance ($r > 0.3$) would be considered of interest. The means for noncategorical background data were tabulated and prepared in table form. Statistical analyses were done using the program, SYSTAT (23).

Results

Demographic and background data indicated that the whole sample was disadvantaged: most were on welfare, few were married or cohabiting, and over half had left secondary school without graduating. A majority reported past histories of physical and sexual abuse or placement (see Table I). Striking findings among the infants’ fathers were the high level of reported criminality and the lack of involvement with their babies. The 87% participation rate of mother–infant dyads suggests that further research in this population is feasible.

Table II indicates presence and absence of psychopathology in the 21 mothers, including conduct disorder, substance and alcohol abuse, and depressive symptomatology. Half had 2 or more conduct symptoms, leaving a nonantisocial comparison group of almost equal size. One-third met modified DSM-III-R criteria for conduct disorder. The rate of a lifetime DSM-III-R diagnosis of substance dependence (drugs or alcohol) was high (33%), but was almost exclusively concentrated in those with conduct disorder. Almost one-quarter of the sample had EPDS scores higher than 12, indicating clinically significant levels of depression. Both the correlation between EPDS scores and the number of antisocial symptoms, as well as a bivariate scatter plot of the 2 scales, showed little or no relationship between the 2 measures.

Table III presents correlations among severity of maternal antisocial history, current depression, and the CARE index interactional measures. It is important to note that mothers who are not rated as optimally sensitive are rated as unresponsive or controlling or both. For this reason it is informative to examine the specific correlations with maternal unresponsive and controlling behaviours rather than sensitivity alone. Significant positive correlations were found among maternal controllingness, baby difficulty, and the severity of maternal EPDS scores. The severity of maternal antisocial history was positively correlated with maternal unresponsiveness and infant passivity. Also, the infant behaviour scales correlated highly and in the expected directions with the maternal scales: passive with unresponsive ($r = 0.8$) and difficult with controlling ($r = 0.7$).

Plotting maternal sensitivity ratings against antisocial symptoms and depression scores indicated that the most insensitive mothers were either the most antisocial mothers or those with the most extreme depression scores (Figure 1).
In this graph, EPDS scores are plotted against the antisocial scale. The symbol for each mother is S for sensitive or a circled I for insensitive (if her sensitivity score was less than one standard deviation below the mean). The graph shows that 4 of the 5 insensitive mothers were at the extreme ends of the antisocial scale or the depression scale. The single exception was a mother near the origin of the graph diagnosed with substance dependence without conduct disorder who abused drugs during pregnancy and after the birth of her infant.

Discussion

We found that adolescent mothers with psychopathology were more likely to exhibit difficulties in early dyadic interactions. Mothers with more severe antisocial histories were less responsive to their infants, and their babies were more passive. The correlation between depression and insensitive mothering was even greater than for antisocial history and maternal insensitivity. These 2 types of maternal psychopathology appeared to have different effects on the quality of mother–infant interactions. Depressed mothers were controlling rather than unresponsive, and their infants were difficult rather than passive (see Table III).

Existing studies in the adult literature have found depressed mothers to be more controlling as well as less responsive in their interactions with their children (24–26). While these data with adolescent mother–infant dyads confirm a relationship between adolescent depression, maternal controllingness, and infant difficulty, it is somewhat surprising that we did not find a relationship between depression and maternal unresponsiveness. It is important, however, not to generalize about the effects of adolescent psychopathology on interactional behavior based on observations made in adult samples. It is also premature to conclude that because such a relationship was not observed in this pilot sample that one might not exist. We did not assess the mothers for diagnoses of major depression, and it is possible that diagnostic differences explain discrepant findings between our study and others.

Interpretation of these data is constrained by several factors. First, the sample size is small; clearly, the finding that adolescent depression and conduct disorder have different effects on the quality of dyadic interactions requires replication with a larger sample. A second factor limiting interpretation of these data is the generalizability of findings derived from this hospital clinic sample. The demographic data, as well as the high percentage of mothers with co-occurring psychopathology, may reflect a particularly at-risk population receiving primary care in this setting. Also, although antisocial history did not correlate with the presence or severity of depression, it did correlate with co-occurrence of alcohol and substance dependence, which may exert independent and confounding deleterious effects on dyadic interactions. Larger sample size and multivariate analysis will be needed to distinguish the relative weight of these and other co-occurring risk factors. Several additional methodological limitations need to be addressed in a larger study. These include more rigorous diagnostic assessment of depression and use of a broader range of interactional measures with good interrater reliability. The EPDS has been validated for use in the first 3 months postpartum, so interpretation of these data is limited by its use after that time frame. As well, the EPDS is a screening instrument for current depressive symptomatology and does not yield information about specific diagnostic subtypes of depression or lifetime history.

The link between maternal conduct disorder and unresponsiveness and the development of conduct disorder in offspring supports the developmental theory put forth by Shaw and Bell (27) on very early parental contributions to the development of conduct disorder. They linked the mother’s prenatal antisocial personality to maternal unresponsiveness in the first 18 months of the infant’s life. In turn, because the infant’s needs are not met, the infant becomes increasingly avoidant of the mother, and positive interactions become less frequent. This leads to increased coercive exchanges and noncompliance in toddlerhood and then the development of conduct disorder. While our findings are compatible with this theory, the links between maternal unresponsiveness and subsequent development of conduct disorder in the child clearly need to be validated in longitudinal studies of larger samples.

In conclusion, these pilot data indicate that specific types of adolescent psychopathology have different effects on the quality of mother–infant interactions. They also suggest that investigators and clinicians seeking to identify and work with at-risk dyads should consider psychopathology an important dimension of assessment. In particular, clinicians studying the development of disruptive behaviour in children should incorporate specific measures of psychopathology (including conduct disorder) in their assessments. A third clinically relevant implication of these results is that risk assessment should not be based solely on the current level of symptom-
at a lifetime assessment of functioning in the context of co-occurring risk factors.

Clinical Implications

- Specific types of adolescent psychopathology may have different effects on the quality of mother–infant interactions.
- Clinicians seeking to identify at-risk dyads should consider psychopathology an important dimension of assessment.
- Risk assessment should be based on lifetime functioning and in the context of co-occurring risk factors.

Limitations

- Larger sample size needed to confirm these results.
- Generalizability of findings derived from a hospital clinic sample.
- Larger sample and multivariate analysis needed to distinguish relative contributions of co-occurring risk factors.

References