ARTICLE

PATTERNS OF EMOTIONAL AVAILABILITY AMONG YOUNG MOTHERS AND THEIR INFANTS: A DYADIC, CONTEXTUAL ANALYSIS

M. ANN EASTERBROOKS, JANA H. CHAUDHURI, AND STEINUNN GESTSDOTTIR
Tufts University

ABSTRACT: The aim of this study was to examine patterns of emotional availability among 80 young mothers (under 21 years at their child’s birth) and their infants, and to identify contextual and individual factors associated with different patterns of emotional availability. To operationalize the dyadic aspect of emotional availability, cluster analysis of the Emotional Availability Scales, third edition (EAS; Biringen, Robinson, & Emde, 1998) was conducted on mother and infant scales simultaneously. Four distinct groups of emotional availability patterns emerged, reflecting synchrony and asynchrony between maternal and child behavior: (a) low-functioning dyads, (b) average dyads, (c) average parenting/disengaged infants, and (d) high-functioning dyads. Further analyses revealed that mothers in different clusters differed on outcomes such as depressive symptomatology, social support, and relationships with their own mothers. The clusters and the variables related to them demonstrate the various challenges in integrating the dual tasks of adolescent and parenting development among young mothers. The clinical implications of these patterns of emotional availability and live context are discussed.

RESUMEN: El propósito de este estudio fue el de examinar patrones de disponibilidad emocional entre 80 madres jóvenes (menores de 21 años al momento del parto) y sus bebés, así como el de identificar factores contextuales e individuales asociados con diferentes patrones de disponibilidad emocional. Para poner a funcionar los aspectos de disponibilidad emocional de las diadas, se llevaron a cabo análisis de grupo de las Escalas de la Disponibilidad Emocional (Biringen, Robinson y Emde, 1998, tercera edición), usando las escalas de la madre y las del infante simultáneamente. Surgieron así, cuatro grupos distintivos de patrones de disponibilidad emocional, reflejando la sincronía y la falta de sincronía entre la conducta maternal y la del infante: 1) Diadas de bajo funcionamiento, 2) Diadas promedio, 3) Infantes no involucrados en la crianza a un nivel promedio, y 4) Diadas del alto funcionamiento. Analisis posteriores revelaron que las madres en diferentes grupos mostraron resultados diferentes en cuanto a la sintomatología depresiva, el apoyo social, así como en las relaciones con sus propias madres. Los grupos y las variables pertinentes demostraron los diversos retos que se presentan al integrar la doble responsabilidad del desarrollo adolescente y de crianza entre madres jóvenes. Se discuten las implicaciones clínicas de estos patrones de disponibilidad emocional y contexto de vida.

RéSUMÉ: Le but de cette étude était d’examiner les tendances de la disponibilité émotionnelle chez 80 jeunes mères (ayant eu moins de 21 ans à la naissance de leur enfant) et leurs bébés, ainsi que d’identifier les facteurs contextuels et individuels associés aux tendances diverses de la disponibilité émotionnelle.

This research was conducted with support from the Massachusetts Children’s Trust Fund, the W.K. Kellogg Foundation, and the Robert Wood Johnson Foundation. Direct correspondence to: M. Ann Easterbrooks, Eliot-Pearson Department of Child Development, Tufts University, Medford, MA 02155; e-mail: ann.easterbrooks@tufts.edu.
De façon à operationaliser l’aspect dyadique de la disponibilité émotionnelle, l’analyse de groupe des Échelles de Disponibilité Emotionnelle EA (Biringen, Robinson et Emde, 1998, 3e édition) fut faite sur des échelles pour la mère et le bébé simultanément. Quatre groupes distincts de tendances de disponibilité émotionnelle ont émergé, reflétant ainsi la synchronie et l’asynchronie entre le comportement maternel et le comportement de l’enfant: 1) dyades à fonctionnement faible, 2) dyades moyennes; 3) parentage moyen/bébé retiré, et 4) dyades à fonctionnement élevé. Des analyses supplémentaires ont révélé que les mères de différents groupes différaient dans les résultats tels que la symptomatologie dépressive, le soutien social, et les relations avec leurs propres mères. Les groupes et les variables y étalés démontrent que les différents défis qu’il existe à intégrer le travail doûblé de développement de l’adolescence et du parentage chez les jeunes mères. Les implications cliniques de ces tendances pour la disponibilité émotionnelle et le contexte vital sont discutées.


抄録：この研究の目的は、80人の若い母親（子どもの出産時21歳未満）とその子どもとの情動的親密性のパターンを調べること、そしてさまざまな情動的親密性のパターンに伴う文脈的な要素と個人的な要素を同定することである。情動的親密性の二面性の側面を操作可能にするために、情動的親密性尺度第3版 the Emotional Availability Scales, third edition (EAS: Biringen, Robinson, & Emde, 1998)のクラスター分析が、母親尺度と乳児尺度について、同時に行われた。母親の行動と子ども行動との間の対調性と非対調性を反映して、次のように分類された情動的親密性パターンクラスターが現れた。1）低機能クラスター、2）平均的、3）具体的養育（束縛されない乳児 Disorganized Infants, そして4）高機能クラスター。さらに分析すると、異なるクラスターの母親には、揺るぎない精神的、社会的支援、そして自分自身の母親との関係性のような、結果が明らかになった。それらに関係するクラスターと変数は、若い母親の間で、患念期の発達と養育行動の発達という二重の課題を統合する際の、様々な困難な問題を明らかにする、これらの情動的親密性のパターンと生の文脈の臨床的意味が議論される。

Emotional availability (EA) is conceived as a relational construct (Emde, 1980) reflecting the adaptive exchanges that regulate emotional communications between infants and caregivers.
EA includes the extent to which individuals, within ongoing interactions, are open to the emotional signals, motivations, and goals of their partner, their responsiveness, and the character of their affective exchanges (Emde, 1980; Emde & Easterbrooks, 1985).

To illustrate: A 6-month-old infant and his mother are playing—the infant gazes at the mother, leans forward to grasp her hair, she turns to face him, smiles, and says “Do you want to talk to me? Do you?” then waits while he responds. This dyad shows characteristics of EA: positive affect, engagement, appropriate structuring, and a nonhostile stance. In another dyad, the interaction is characterized by lack of EA and is painful to watch. The mother, asked to play with her 9-month-old infant, repeatedly removes herself from close bodily contact with her infant. The infant makes repeated attempts to engage her mother with vocalizations, grasping of her clothing, and climbing onto her. The mother is silent, rarely gaze at her infant, and shows no positive affect either toward her infant or other aspects of her environment.

According to theory, infants who experience positive EA with caregivers should be better able to regulate their own emotions, and to hold an accessible and empathic stance with others (Biringen & Robinson, 1991). EA in infancy thus helps to set the stage for organized socioemotional regulation in childhood.

The construct of EA encompasses characteristics of caregiver sensitivity, intrusiveness, structuring, and hostility, and infant responsiveness and involvement, as operationalized in the Emotional Availability Scales (EAS; Biringen, Robinson, & Emde, 1990, 1993, 1998). In the past few years, a considerable body of research supports links between observations of EA, maternal characteristics (e.g., mental representations and psychosocial risk factors), and child behavior. A special issue of the journal Attachment and Human Development (2000), for example, was devoted to links between EA and attachment behavior in infants and children, attachment representations of adults. That collection of articles (Biringen, Brown, et al., 2000; Biringen, Matheny, Bretherton, Renouf, & Sherman, 2000; Easterbrooks et al., 2000; Oyen, Landy, & Hilburn-Cobb, 2000; Swanson, Beckwith, & Howard, 2000; Ziv, Aviezer, Gini, Sagi, & Koren-Karie, 2000) demonstrated consistent associations between assessments of attachment and EA that cut across developmental epoch (infancy to age 7), caregiving environmental risk (e.g., substance abuse, range of socioeconomic resources, mental health issues) and country of origin (Canada, Israel, United States). The construct of EA, while related to attachment, is construed as more broad based (Biringen & Easterbrooks, 2000). While contexts of stress or danger figure prominently in the activation and assessment of attachment, most studies of EA examine low-stress play situations between children and caregivers.

In their introduction to the special issue on EA and attachment, Easterbrooks and Biringen highlighted the need for more work to “determine the boundaries or limits of the construct of EA and the EAS as they relate to different families, different cultures and different contexts” (2000, p. 127). Similarly, Emde (2000), in his commentary on the applications of EA research, called for investigations of cultural and subcultural influences on EA as well as on risk conditions. The study of adolescent parenting fits both of these criteria, as a “risk factor” for the development of both mothers and children and as a particular subculture. The present study was designed to investigate the characteristics and correlates of EA among young mothers and their infants.

ADOLESCENT MOTHERS AND THEIR INFANTS

Becoming a parent during the adolescent years often presents challenges to young women and to their children. According to the literature, young women who become mothers as adolescents are less successful in educational, occupational, and economic attainment, more likely to be single parents, and live in poverty compared to older mothers (Annie E. Casey Foundation,
Many adolescent mothers experience high levels of stress and risk factors that may interfere with sensitive and emotionally available parenting. For example, there is ample evidence that adolescent mothers, as a group, experience high levels of depressive symptoms, with rates of moderate to severe depressive symptoms from 30 to 60% (Crockenberg, 1987; Field, Healy, Goldstein, & Guthertz, 1990; Leadbeater & Linares, 1992). These symptoms seem to be more than a transient adjustment to motherhood. Several studies document significant stability and elevation in depressive symptoms of adolescent mothers across the first 2 to 3 years of child rearing (Leadbeater & Linares, 1992), even with a decline in the level of symptoms experienced across the first year.

Children of adolescent mothers also are at increased risk for problems in development (e.g., developmental delays, insecure attachments) (cf. Coley & Chase-Lansdale, 1998; Furstenberg et al., 1989). These increased risks may be due to factors at multiple levels of the environment (e.g., less optimal home environments, less positive social support, and less optimal mother–infant interactions). Even after the effects of decreased economic resources, marital status, and education of young mothers are removed (Edeleman, 1987), the home environments of adolescent mothers may offer less responsive caregiving, less verbal stimulation, and be less supportive and more negative emotionally (Luster & Mittelstaedt, 1993; Wakschlag & Hans, 2000).

While the data suggest that as a group, adolescent mothers and their children fare less well than do those whose childbearing occurs during adulthood, there are several caveats or qualifications that must be noted. The research on adolescent parenting has been criticized for taking a single-component approach, or a “homogeneous” view of adolescent parenthood. As adolescence is a distinct life period, it may be incorrect also to assume that models explaining variations in adult parenting apply to adolescent mothers (Shapiro & Mangelsdorf, 1994).

For some mothers, the tasks and responsibilities of parenting may clash with typical adolescent behavior related to spontaneity, freedom, and autonomy. Adolescent motherhood “complicates the resolution of the central developmental task of adolescence, achieving a balance of individuality and connectedness” (Wakschlag & Hans, 2000, p. 131). Even this may not be a uniform phenomenon, as the social context of adolescent parenting may determine whether it is seen as a normative, positive, or “off-time” event (Burton, 1990).

Indeed, there is considerable variability in the “outcomes” and developmental trajectories of young mothers and their children (Appelbaum, Butterfield, & Culp, 1993; Furstenberg, Brooks-Gunn, & Morgan, 1987; Osofsky, Culp, & Ware, 1988); however, this variability is not well understood (Shapiro & Mangelsdorf, 1994). Factors such as social/cultural context of adolescent parenting, maternal age, family of origin, or cognitive readiness to parent (O’Callaghan, Borkowski, Whitman, Maxwell, & Keogh, 1999) may lead to different patterns of adaptation for mothers and infants.

The typical strains of adolescent parenthood also may be complicated or lessened by family and partner relationships and residency (Chase-Lansdale, Gordon, Coley, Wakschlag, & Brooks-Gunn, 1999; East & Felice, 1996; Wakschlag & Hans, 2000). If coresidence between the young mother and her own family results in crowding (Burton, 1990; Chase-Landsdale et al., 1994) or lack of clarity about who fills the maternal role, for example, stress may result. The literature on grandmother involvement suggests an interactive effect of residential status.
and grandmother involvement, with high levels of grandmother support in the context of residential independence, or high levels of support and encouragement of independence, facilitating more positive parenting and developmental outcomes for the young mother and her child (Leadbeater & Linares, 1992; Wakschlag & Hams, 2000).

Shapiro and Mangelsdorf (1994) highlighted the variability in mother–infant interactions associated with maternal age. Specifically testing a model of the correlates of adult parenting (Belsky, 1984), Shapiro and Mangelsdorf found that adult models of parenting competence only partially explained variations in adolescent mothers’ parenting. In particular, links between social support and parenting competence were more complicated than suggested in models of adult parenting where high social support is linked with more positive parenting. Data from this study also highlighted a central role of adolescent mothers’ “emotional sensitivity” in relation to parenting competence. Mothers who were better at interpreting infant emotions also behaved in a more positively expressive and sensitive manner with their infants.

The capacity to perceive and interpret infant emotions accurately and appropriately is one facet of EA. For example, a mother who is aware of relatively subtle emotional cues that indicate the beginnings of discomfort and distress (e.g., increased body movement, hiccupping, or whimpering), accurately interprets them as indicating a distressed state, and who responds with contingent affect and behavior (e.g., smiles at her 4-month-old, coos, says “What’s wrong, are you feeling uncomfortable?” while gently repositioning the infant) demonstrates greater EA than the mother who waits to respond until the discomfort results in a full-blown distress cry and disorganization of behavior. Infants also differ in the clarity of their cues, the intensity of their responses to maternal bids, and other factors that mark EA as a function of a relationship.

Although EA was conceptualized as a “relationship construct” (Biringen & Robinson, 1991; Biringen et al., 1990; Emde, 2000), extant data typically have been analyzed as more or less “individual properties” of members of the dyad. In her commentary on the articles in the 2000 special issue on EA and attachment, Bretherton (2000) implicitly called for examining patterns of dyadic organization. She asked, for example, “What characterizes a highly responsive child who has a less sensitive mother?” and “What characterizes a highly sensitive mother with a less responsive child?” (Bretherton, 2000, p. 238). Similarly, Easterbrooks and Biringen (2000) stated “[w]e need to know more... about the characteristics of infants, children, and adults that comprise particular patterns of emotional availability as a dyad” (p. 128).

The present investigation was designed to further knowledge about (a) EA as a relational construct and (b) variations in the context of adolescent parenting. Our goal was to sample EA in play interactions among young mothers and their infants, and to examine patterns of personal characteristics and family ecology associated with variations in dyadic organization. We aimed to make a contribution to the literature on EA by (a) studying EA in the interactions of young mothers and their infants, and (b) applying an analytic framework that examines the dyad as a unit rather than as separate individuals. By analyzing maternal and child behavior simultaneously via cluster analysis, we acknowledge the dyadic aspect of their behavior by using a person-oriented approach rather than one that looks at patterning of variables (O’Neal, Bell, Sorell, & Peek, 2002). This approach captures different dyadic structures and allows for complex patterns of EA to emerge.

METHOD

Participants and Procedure

Eighty adolescent mothers and their infants were seen in their homes after enrolling in a statewide prevention-oriented home visiting program for first-time young parents (<21 years
of age) and their infants. The program aims to support young families, with goals of reducing rates of child abuse and neglect, facilitating optimal child health and development, improving maternal life-course outcomes (e.g., educational and economic attainments), and reducing repeat early births.

The sample used for this study is embedded within a short-term, longitudinal independent evaluation of this home-visiting program for adolescent mothers. First-time pregnant and parenting adolescents were recruited to participate in the evaluation. Mothers were interviewed shortly after program enrollment and every 6 months thereafter for a period of 18 months. Data for this study come from two time points (Time 1 and Time 2). At each time point, mothers were interviewed in their homes and asked to complete a battery of questionnaires. At Time 2, mothers and infants were videotaped during a 5-min, free-play interaction.

At the videotaped assessment, mothers’ mean age was 18.5 years ($SD = 1.6$); child mean age was 10.1 months ($SD = 3.7$). Maternal race was representative of the young-mother population of the Commonwealth of Massachusetts. Almost 37% of the sample described themselves as White, 16% Black, 41% Hispanic, and almost 6% other. Just under half (45%) of the mothers had completed high school; 23.8% currently were enrolled in school.

**Measures**

**EAS.** EA was assessed from videotaped observations of mother–child free play at home using the EAS Infancy to Early Childhood Version, third edition (Biringen et al., 1998). The scales consist of four parental dimensions: sensitivity, structuring, nonintrusiveness, and nonhostility, and two child dimensions: responsiveness and involvement of interaction. Parental sensitivity (9-point scale) is a global construct that takes into account qualitative factors such as affect, timing, flexibility, acceptance, conflict negotiation, and the parent’s awareness of their child’s cues as well as appropriate responsiveness. Parental structuring (5-point scale) refers to the parent’s ability to structure or scaffold the child’s environment and play. Parental nonintrusiveness (5-point scale) involves the degree to which the parent can be available without interfering with the child’s autonomy and space. Parental nonhostility (5-point scale) refers to behavior that is free of impatience, harshness, or malice. Child responsiveness (7-point scale) indicates how well the child responds to parental bids and expressions. Child involvement (7-point scale) refers to the degree that the child invites or includes the parent in play.

Videotapes were coded by trained raters who achieved interrater reliability. Kappas ranged from .82 to .94 ($M = .87$). Following the training period, one third of the tapes were examined by two coders for reliability, and disagreements were resolved by conference. Separate teams of raters coded infant and maternal behavior.

**Research interview.** Mothers were interviewed in their homes regarding aspects of daily life with their infants, grandmother and father involvement, general living arrangements, educational attainment, and financial stress. Visits lasted approximately 2 hr and included semistructured interviews, questionnaires, and an observation of parent–infant play. This article includes data from research interview questions addressing the caregiving role of the infant’s grandparents (e.g., “Who cares for your infant when you are not with him/her?” “How many hours per week does she care for the infant?”).

**Neighborhood Conditions Questionnaire (T1).** Perceptions of community safety and the resources available for children were assessed through a modified Neighborhood Cohesion Scale (Buckner, 1988). Based on 21 questions, the measure assesses the number of positive attributes.
within an individual’s surrounding neighborhood and community. Questions include the accessibility of child-oriented spaces such as parks and libraries, safety and maintenance of local neighborhood, and the characteristics of people living in the area (i.e., respectful of law and other’s property). Scores can range from 1 to 21, with higher scores indicating better neighborhood conditions. The measure demonstrates good psychometric properties (internal consistency α = .97, test-retest = .80), and discriminates among different neighborhoods (Buckner, 1988).

**Questionnaires**

**Health risk behavior (T2).** Mothers completed the Youth Risk Behavior Survey (YRBS; Center for Disease Control, 1992) to indicate how often they engaged in risky health behaviors such as substance use and sexual, violent, and suicidal behaviors. The survey yields a continuous score (0–98) in which higher scores indicate a greater number of risk behaviors. This survey has demonstrated adequate validity and “moderate to substantial” test-retest reliability through the work of the Youth Risk Behavior Surveillance System (Brener et al., 2002), which has used surveys collected by national, state, and local education and health agencies to provide national data on the prevalence of risk behaviors.

**Depressive symptoms (T2).** Maternal depressive symptomatology was assessed using the Center for Epidemiological Studies-Depression Scale (CES-D; Radloff, 1977). The 20-item CES-D yields a continuous score (0–60), indicating frequency of depressive symptoms, and a dichotomous cutoff score (16), denoting that symptoms above this level indicate clinically significant levels of depression. The reliability and validity of the CES-D has been well established, with 100% sensitivity with a clinical diagnosis using the cutoff scores, and 88% specificity (Radloff, 1977; Radloff & Locke, 1986).

**Mother’s perceptions of childhood relationships with parents (T2).** Mothers completed the Parental Bonding Instrument (Parker, Tupling, & Brown, 1979), which assesses perceptions of their parents during childhood on two subscales: parental nurturing care and parental overprotection. The subscales yield continuous scores (12–36 and 13–39, respectively); higher scores indicate a greater degree of nurturing care or overprotection. The scale demonstrates acceptable reliability and validity, and the subscales were found to be independent of parent gender (Parker et al., 1979).

**RESULTS**

Descriptive data on EA scores are presented first, followed by analyses that differentiate patterns of EA among dyads and analyses that examine contextual and background factors related to the different dyadic patterns. In the “contextual” analyses, we examined maternal and child age, mother’s educational and marital status, mother’s perception of relationship with maternal grandmothers during childhood, current relationships with maternal and paternal grandmother, neighborhood conditions, and mother’s health risk behaviors and depressive symptoms in relation to patterns of dyadic interaction.

Cluster analysis is a multivariate technique used to detect already-existing structures in a dataset. In the present investigation, cluster analysis was used to detect potentially different patterns of dyadic interactions between mothers and children by examining the EA scores of mothers and infants simultaneously and classifying the dyads, based on their mean scores on EA, into groups (clusters) that are internally homogeneous (similar to other members of the
same cluster), but externally heterogeneous (different from members of other clusters). Thus, the aim is to identify groups of people who resemble each other rather than groups of variables as can be achieved with some other techniques.

K-means cluster analysis was chosen as the cluster analytic technique and was run using SPSS 10.0.5. This clustering procedure identifies groups of cases by assigning participants to clusters based on the Euclidean distance from the group centers (SPSS, 1999). We expected to find either synchrony or asynchrony between patterns of EA of mothers and children (e.g., dyads in which both partners were functioning at the same level and two asynchronous patterns of mother–child interaction). Thus, four clusters were specified. Three- and five-cluster solutions also were examined, but did not provide as good a fit to the data.

The different groups of mother–infant dyads emerging from this analysis were examined in relation to the contextual and background variables mentioned earlier using analysis of variance for continuous variables. When significant differences emerged, a Tukey procedure was used for follow-up analyses. Chi-square tests were used to assess whether cluster membership varied across groups of categorical variables. Variables were standardized before they were entered into the cluster analysis (Aldenderfer & Blashfield, 1984). As the two child scales, responsiveness and involvement, were highly correlated ($r = .76, p < .000$), they were combined.

The four subtypes identified, based on patterns of EA behavior, were labeled “low-functioning dyads” (Cluster 1, $n = 15$), “average dyads” (Cluster 2, $n = 31$), “average parenting/disengaged infant” (Cluster 3, $n = 14$), and “high-functioning dyads” (Cluster 4, $n = 20$). The clusters are presented in Figure 1; Table 1 provides mean scores for EA for each cluster and the sample grand mean.

To confirm the patterns identified by the K-means cluster method, a hierarchical cluster analysis, which does not specify number of clusters, was conducted. A visual inspection of the dendogram of the hierarchical cluster analysis identified similar clusters as the K-means cluster method. Although a few dyads were assigned to different clusters, the hierarchical cluster analysis provided general support for the outcome of the K-means cluster method.

Examining the mean scores for the EAS, the mothers in the low functioning dyads (Cluster 1) were the only mothers who showed parenting below optimal, with scores significantly lower than those of all other clusters. Table 2 contains descriptive information on the contextual and background variables according to cluster membership. The infants in these dyads scored around
the cutoff score, differentiating optimal from nonoptimal interactions, with scores on responsiveness just above the cutoff and scores on involvement just below the cutoff (see Table 1).

Using ANOVA and chi-square analyses to examine relations between cluster membership and the contextual and background variables demonstrated that the mothers in the low functioning dyads had high levels of negative factors in their lives (see Table 2 for significance tests). These mothers were younger than mothers in all other clusters ($M = 18.07, SD = 2.01$); 70% of them were high-school dropouts, and they reported the lowest neighborhood quality ($M = 10.53, SD = 2.7$). When asked about other people in their lives, they reported the lowest perception of nurturing care from their mothers during childhood ($M = 27.29, SD = 5.89$). Sixty-seven percent of them reported that maternal grandmothers were regular caregivers of their infants.

The “average” group (Cluster 2) consisted of dyads in which mothers and children showed adequate interactions (see Table 1). This group was the largest, with group means that are relatively similar to the grand means on all subscales (for both mother and infant scales) and can be viewed as representing the “average” mother–infant dyad in our sample (see Figure 2). Different from the Cluster 1 dyads, behavior of mothers and infants on all scales was adequate, suggesting a synchrony within the dyad. Similar to mothers in Cluster 1, these mothers had many negative factors in their lives (see Table 2). Depressive symptoms were highest of all the mothers (Sixty-one percent of them reported symptom levels that fall above the clinical cutoff) and the highest level of health risk behaviors ($M = 14.56, SD = 9.08$). Similar to mothers in Cluster 1, these mothers recalled their own mothers as lacking in nurturant care in their own childhood, yet the large majority (79%) of maternal grandmothers in this group were regular caregivers for the infants.

There was substantial asynchrony between EA of mothers and children in Cluster 3. Mothers’ scores were above the cutoff for optimal interaction and close to the grand mean on all scales. Therefore, they showed similar patterns of parenting to that of mothers in the average dyads (Cluster 2). What distinguished these dyads was the levels of infant responsiveness and involvement of their mothers; behavior that was far below optimal and significantly lower than that of infants in all other clusters. Thus, unlike the average dyads (Cluster 2), there was discrepancy between scores of mothers and infants in this cluster (see Figure 1).

In many respects, these mothers were functioning fairly well as a group. Only 21% reported having dropped out of high school; they had the lowest rate of risk behaviors ($M = 7.77, SD = 6.58$), and this is the only group where less than half of the mothers reported symptoms of depression in the clinical range. In fact, only 14% of these mothers showed such symptoms.

### Table 1. Means of Child and Mother EAS by Cluster

<table>
<thead>
<tr>
<th></th>
<th>Sample</th>
<th>ANOVA</th>
<th>Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>F(3, 76)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Child Responsiveness</strong></td>
<td>5.1</td>
<td>53.03**</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Involvement</strong></td>
<td>4.4</td>
<td>55.27**</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Parent Sensitivity</strong></td>
<td><strong>4.4</strong></td>
<td>55.27**</td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Structuring</strong></td>
<td>3.5</td>
<td>23.94**</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Nonintrusiveness</strong></td>
<td>3.4</td>
<td>17.16**</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Nonhostility</strong></td>
<td>3.4</td>
<td>17.16**</td>
<td>2.7</td>
</tr>
</tbody>
</table>

**Note.** Superscripts indicate clusters that are significantly different ($p < .05$). *Scores at cutoff and below indicate nonoptimal EAS.

---

*IMHJ (Wiley) RIGHT BATCH*
### TABLE 2. Variable Means and Frequencies by Cluster

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>F/df</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal Age (in years)</td>
<td>3.24*</td>
<td>18.76 ± 1.57</td>
<td>18.07 ± 2.01</td>
<td>18.44 ± 1.29</td>
<td>19.27 ± 1.53</td>
</tr>
<tr>
<td>(3.74)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baby Age (in months)</td>
<td>2.80*</td>
<td>10.10 ± 3.68</td>
<td>9.04 ± 2.30</td>
<td>10.33 ± 3.18</td>
<td>8.46* ± 2.09</td>
</tr>
<tr>
<td>(3.76)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neighborhood Conditions</td>
<td>2.90*</td>
<td>12.32 ± 3.76</td>
<td>10.53* ± 2.70</td>
<td>11.81 ± 4.20</td>
<td>14.00* ± 4.04</td>
</tr>
<tr>
<td>(3.76)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception of maternal grandmother as caring</td>
<td>3.02*</td>
<td>29.05 ± 5.14</td>
<td>27.29 ± 5.89</td>
<td>27.64 ± 5.20</td>
<td>30.25 ± 4.24</td>
</tr>
<tr>
<td>Percent for Total Sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent married at enrollment</td>
<td>9.20*</td>
<td>3.8 ± 0</td>
<td>0 ± 0</td>
<td>0 ± 0</td>
<td>0 ± 0</td>
</tr>
<tr>
<td>Mothers who have dropped out of school</td>
<td>6.42*</td>
<td>45 ± 70</td>
<td>41 ± 21</td>
<td>44 ± 55.0</td>
<td></td>
</tr>
<tr>
<td>Percent above depression cutoff</td>
<td>8.99*</td>
<td>50 ± 53.3</td>
<td>61.3 ± 14.3</td>
<td>55.0 ± 14.3</td>
<td></td>
</tr>
<tr>
<td>Dyads in which mother is not primary caregiver</td>
<td>9.67*</td>
<td>3.8 ± 0</td>
<td>0 ± 0</td>
<td>14.3 ± 0</td>
<td></td>
</tr>
<tr>
<td>Dyads in which maternal grandmother is involved in caregiving</td>
<td>10.41*</td>
<td>67.5 ± 66.7</td>
<td>77.4 ± 85.7</td>
<td>40.0 ± 38.0</td>
<td></td>
</tr>
<tr>
<td>Dyads in which maternal grandmother is regular caregiver at T1</td>
<td>7.23*</td>
<td>63.1 ± 66.7</td>
<td>79.2 ± 63.6</td>
<td>38.9 ± 38.0</td>
<td></td>
</tr>
<tr>
<td>Dyads in which paternal grandmother is involved in caregiving</td>
<td>6.68*</td>
<td>20.0 ± 13.3</td>
<td>12.9 ± 14.3</td>
<td>40.0 ± 40.0</td>
<td></td>
</tr>
</tbody>
</table>

Note. Superscripts indicate clusters that differ from one another (p < .05).

* p = .05, †p < .10.

Mothers in this group reported moderate amounts of nurturing care from their own mothers in childhood. A large number of the grandmothers were involved with their grandchildren at Time 1, and at Time 2 they were more frequently involved with the caregiving of the infants than in any other group (86%). This was the only group in which some of the mothers (14%) were not their children’s primary caregivers. This finding raises questions about other differences in these mothers and their contexts; because the sample size was small, these important questions are beyond the scope of this particular investigation.

One group of mothers and infants showed interactions far above optimal (Cluster 4). Although maternal scores were not statistically different from Cluster 3 on sensitivity, nonintrusiveness, and nonhostility, they had higher scores on appropriate structuring (see Table 1). They also had higher scores on all EAS than the mothers in Cluster 1, and they were higher...
on sensitivity and structuring than the mothers in Cluster 2. The children in this group scored significantly higher on responsiveness and involvement than children in any other cluster. Thus, there was synchrony between mothers and children in this group.

Generally, the mothers in this cluster had fewer negative factors in their lives than did mothers in Clusters 1 and 2. Similar to mothers in Cluster 3, these mothers were older (M = 19.44, SD = 1.37), without high levels of risk behaviors (M = 9.74, SD = 6.35), and neighborhood quality was reasonably good (M = 13.3, SD = 2.9). This was the only group that included married mothers (15%), and unlike all the other groups, many (40%) reported paternal grandmother involvement with the child. The mothers in Cluster 4 reported the most nurturing care from their own mothers during childhood, but few maternal grandmothers (40%) were regular caregivers at Time 1 or were involved in caregiving of the infants at Time 2. With regard to their personal development (education and mental health), these mothers were doing less well than mothers in Cluster 3; 44% were high-school dropouts, and 55% showed depressive symptoms above the clinical cutoff.

DISCUSSION

Our goal in this article was to examine EA among young mothers and their infants in a way that might contribute to our understanding of patterns of dyadic EA and variations in adolescent parenthood. We wanted to address recent critiques (Bretherton, 2000) of the way in which EA, while conceived as a relational construct, often has been reduced to single variables (such as maternal sensitivity) in data analysis. In this study, we attempted to acknowledge the complex, dyadic nature of mother–child interactions by looking at multiple facets of mother and child behavior simultaneously using the technique of cluster analysis, which allows each individual EAS to play a role in determining relational patterns and to possibly differentiate between groups. The findings supported the use of the multiple scales in this way, suggesting that reliance on a single indicator of EA, such as maternal sensitivity, may obscure variability in interactional patterns within the dyad.

There were four distinct patterns of mother–infant EA: (a) dyads showing high EA of both mother and infant, (b) dyads showing low mother and infant EA, (c) an average-functioning dyad, and (d) a disengaged infant/average parent pattern. As expected, different dyads showed either synchrony or asynchrony between mother and infant scores. This reinforces the idea that both mother and children contribute to the mother–child relationship and suggests that it is important to recognize the fit between mother and child characteristics. Asynchrony in dyads may raise questions of the “goodness of fit” in a particular mother–infant pair, and
may call for support efforts to help the dyad become more closely attuned. We observed only one type of asynchrony, the “disengaged infant/average mother” dyad. The comparable pattern “disengaged mother/average infant” was not observed. Does this dyadic pattern not exist or is there an artifact of our observations? It may be that in brief observations mothers can maintain appropriate or average functioning for a short time while the infant, less affected by the presence of videotaping equipment, does not alter his or her typical behavior that reflects a history of interaction with a mother who is not highly emotionally available.

While all the EAS were included in analyses, one scale, maternal structuring, differentiated the groups most often. This suggests that for young mothers, finding an appropriate balance of structuring in free-play interactions may be challenging, sometimes resulting in either passive, overly “permissive” behavior or overly rigid structuring. There were two such interactional patterns that indicated maternal difficulties in finding the balance in framing/guiding the interaction; often, these patterns of maternal behavior were paired with either infant passivity and withdrawal or negative affect and protest. Illustrating the overly structuring pattern, one mother seemed to “have an agenda” for the interaction. Rather than taking her signals from the child, she directed the course of the free play, choosing the toys to be played with. Some mothers appeared to act “like a peer” with their children, competing for toys, saying “That’s mine; I want that.” These kinds of “peerlike” interactions may be particularly evident among young mothers and their children. The second pattern indicated lack of maternal affective engagement or a somewhat “helpless” stance on the part of the mother, who provided little or no structure for the interaction (e.g., positioning the child or toys, making suggestive or elaborative comments, or making bids to a child who was disengaged).

Attempts to understanding these kinds of interactions among mothers and infants will benefit from considering the developmental context of their lives. Both mothers’ current-life context and childhood history were related to EA patterns. In two of the groups, mothers showed many indicators of positive development, such as low health risk behaviors and positive recollections of their own mothers during childhood. There also were differentiating factors between mothers in these groups. In the “average parenting/disengaged infant” group, the mothers showed only average parenting behaviors, but seemed to be doing unusually well, compared to other mothers, on aspects related to their individual development. They showed the lowest level of depressive symptoms, the least health risk behaviors (ranging from seat belt use to substance use), the lowest rate of high-school dropouts, the best neighborhood quality (indicated by neighborhood cohesion and resources), and a good relationship with their own mothers in childhood).

While these mothers displayed higher levels of assets, their infants displayed the lowest connectedness to their mothers. This may reflect the fact that only in this cluster were there mothers who were not the primary caregivers of their children. Maternal grandmothers were very involved in taking care of their grandchildren. When grandmothers fill primary caregiving roles, the patterns of relationships among mother, grandmother, and infant may change. While this group was small, this pattern bears further study. Interestingly, mothers in this group seemed to be focusing on their own development to a greater degree than some other mothers. When asked “How has life changed for you since you have had your baby?” one mother in this group replied:

I have a lot of responsibility... Before [I got pregnant] I only worked once... so I was really lazy and I wouldn’t even care about school or anything. So when I found out [that I was pregnant] I said: I need to graduate. So I got back to school and I graduated and I started working. I feel now like an adult more than a teenager. Sometimes it’s tough because...
Dyadic Emotional Availability

I don’t want to feel like an adult and . . . I would like to go back to just me and my boyfriend. I couldn’t imagine myself without her now, but it’s changed a lot . . . I have to think about her before I think about me.

The mention of the baby is typical of most mothers, but the primary focus of this quote, her own “growing up” and educational/work trajectory, highlights this mother’s focus on her own personal development. Perhaps the spotlight on the young mother’s personal and educational/occupational development has a “cost” in a more distant, less engaged infant–mother relationship.

Mothers and infants who were “high-functioning dyads” had the most optimal EA. According to theories of parenting, the care that parents received during their childhood figures prominently in their own internal models of parenting and their parenting behavior (Belsky, 1984; Bretherton, & Munholland, 1999; Fonagy, Steele, & Steele, 1992). Our own data support this notion; this group of mothers reported the highest nurturing care from their own mothers during childhood. Infants of these mothers were far more connected to their mothers (appropriately responsive and involving) than infants in the other groups. This was the only group that included married mothers (though a low percentage) and had the lowest percentage of maternal grandmothers who were regularly involved in caregiving.

Perhaps, then, these mothers had both emotional support for parenting, a positive and secure internal working model for parenting, and a primary focus on the role of motherhood. When asked what has changed since she become a mother, one mother described it this way:

360° Totally different. Totally, totally different. Everything changed. I’m not saying that I was immature before, but . . . I’m more mature now. I take life more seriously. I have more responsibilities, more worries. Now I see where my mother is coming from and I can relate, and I respect my mother now—not that I didn’t respect her but I respect her more. . . . I’m not saying the fun has stopped, but all the games aside, time to grow up. . . . So it’s like a wake up call. It’s different, more responsibilities, it’s not just you anymore. It’s whatever you do—how will it inflict upon her? . . . You can’t be tired anymore. There’s no ‘ifs ands or buts’ or ‘no-I-don’t-want-to,’ you just have to.

While these mothers had relatively few negative factors in their lives, they showed a high level of depressive symptoms, suggesting that the focus on her role as a mother may have “personal costs” to developing adolescents. Other studies also have reported high levels of depressive symptoms in 30 to 60% of their samples of young mothers (Crockenberg, 1987; Field et al., 1990; Leadbeater & Linares, 1992).

The positive nature of the mother–infant interaction among mothers in this group of “high-functioning dyads” may belie an underlying vulnerability. Although most of these mothers reported positive and supportive childhood histories, assuming that this is the case for all “high-functioning” dyads fails to acknowledge the heterogeneity within a group. While positive childhood experiences support the “intergenerational transmission” of positive parenting in most cases, it is important to look beyond the immediate interaction, particularly brief encounters. In our study, the case of one mother in a “high-functioning” dyad illustrates this well. Despite high confidence as a parent, this mother reported very high depressive symptomatology. She had a history of abuse in her family of origin, and as a child was removed from parental care, living in foster care and finally with her grandmother. The relationship with grandmother was close and supportive. This mother also currently had a supportive relationship with the father of her infant. Despite these positive relationship factors, there were contextual stressors,
including a neighborhood environment characterized by violence, poverty, and low community resources.

In the attachment literature, a parent who currently holds a secure working model of attachment despite difficult childhood relationships with parents is seen as having “earned security.” In one study (Pearson, Cohn, Cowan, & Cowan, 1994), while parents with “earned security” demonstrated similar parenting behavior as those with “continuous security” (parents with positive childhood attachment histories), further examination revealed vulnerability to depressive symptoms; this pattern is illustrated by the mother described previously. These mothers may need significant “relationship support” to nurture and sustain their positive parenting. In fact, our interviewer, reflecting on the first visit with this mother, commented “Mom desperately needed someone to talk to.”

Mothers in the “low-functioning dyads” and “average dyads” showed few signs of positive development; they reported high risk behaviors, were younger, lived in neighborhoods with more problems and fewer resources, and reported high levels of depressive symptoms and low perceptions of their own mothers as having provided nurturant care during childhood. Despite some similarities to each other, the two groups show very different patterns of EA. The mothers in the low-functioning dyads showed parenting that was below optimal, which may suggest that in the face of the many challenges present in their lives, they may not be ready to take on the challenges of motherhood. This is reflected in the following response from a mother:

It’s boring. Well, I don’t go out. I used to work everyday and then when I didn’t work I used to go out clubbing. Now I don’t do anything. My social life is gone, but it really doesn’t matter. I think it’s hard to have a kid at a young age and have a social life ‘cause people your age don’t usually have children. You can’t have both.

What distinguishes her from the mother in the “high-functioning dyad” described earlier? The mother described earlier is confident in her parenting abilities, and her infant is engaging and responsive. She likely has embraced the role of motherhood as an integral part of her identity as an adult; with a responsive and engaging infant, motherhood is pleasurable. This is in contrast to the current example in which the mother reflects negatively on motherhood and yearns “to complete” her adolescence. Neither she nor her infant seems to gain pleasure from their interactions.

While mothers in the “average dyads,” the largest group, also were developing in “risky” contexts, they showed more appropriate interactions with their infants. It may be that these mothers are engaging in typical adolescent behaviors; at the same time, they are more prepared to take on the identity and tasks of motherhood. Thus, they seem to be playing the role of teenager and mother simultaneously, as reflected in a quote from one mother when asked what had changed since the birth of her child:

Actually, not really that many things really. I still get to go out because my mom watches him. I still get to do the same things. I still get to spend time with him. I still get to go to school. I work, I spend time with him.

Another case example shows the importance of examining the role of the extended family when working with young mothers. This infant—mother dyad lived with both the baby’s father and the maternal grandparents. The mother reported good relationships, both historically and currently. Though this dyad belonged to the “average cluster,” there was some evidence of asynchrony in their interaction; while the mother’s behavior was inconsistent in EA (somewhat
Dyadic Emotional Availability

overstructuring of the interaction), the infant was highly responsive and involving. In this case, we think that the extended family plays a protective role, fostering the child’s engagement in social interactions. While many young mothers desire to move out of the parental household and to form an independent family unit, the current extended-family living setting may best promote and maintain EA within some dyads.

The four distinct patterns of mothers and infants demonstrate the variability among adolescent mothers and their contexts (Shapiro & Mangelsdorf, 1994), and the relations between characteristics of the mothers and their parenting behavior. These data counter assumptions that teenage parents can be characterized uniformly. Examination of multiple aspects of these mothers’ lives highlights a natural tension that occurs in the lives of the young women: the challenges of being a mother and that of being a teenager (Wakschlag & Hans, 2000). This complexity is not uncommon during the period of emerging adulthood (Arnett, 2000). Within the two groups of mothers in which dyadic EA was best, one group seemed to be focused primarily on parenting at the “expense” of personal goals and well-being while the other seemed to be pursuing economic and academic pursuits, leaving less time to concentrate on motherhood or perhaps a smaller portion of their identity devoted to motherhood. The largest group of mothers, with “average” EA, appeared to be “doing it all”—trying to enjoy their time as teenagers as well as devoting time and energy to their infants. One might question whether this pattern demonstrates the resilience of young mothers (given the “average” functioning) or whether there may be “costs” to both domains of development (parenting and their individual development). The final group represents mothers who seem to be struggling with multiple risk factors and stressors and for whom both individual development and parenting is challenging. This diversity surely counters the notion that young mothers are a homogeneous group to which models of adult parenting are easily applied (Shapiro & Mangelsdorf, 1994; Wakschlag & Hans, 2000).

Some limitations of this study should be noted. First, assessments of EA were limited to a brief (5-min) observation period. While the findings of previous studies using short (5- to 10-min) observations (Easterbrooks et al., 2000; Swanson et al., 2000; Ziv et al., 2000) lend credence to their usefulness in measuring EA, longer observation periods are optimal, particularly in situations of low EA (Biringen et al., this issue). To achieve a complete picture of the clusters and the factors associated with variations in patterns of EA requires extensive knowledge about young mothers’ lives. While offering some insights into characteristics of these mothers and their lives, our data is, of course, not comprehensive. In particular, further examination of the roles of grandmothers, socioeconomic stressors, and aspects of child temperament may contribute to a better understanding of the variability among young mothers. Our own future work will address some of these contextual issues as well as issues of stability of EA patterns across time and context.

CLINICAL IMPLICATIONS

Working with young mothers presents certain challenges and complexities that must be recognized as unique to their developmental phase. While parenthood calls for responsibility, stability, and predictability, adolescence or “emerging adulthood” (Arnett, 2000) is a period of exploration, spontaneity, and instability. Understanding that young mothers may have needs and desires that span both developmental periods may aid in prevention and intervention efforts to promote healthy adaptation for them and their infants. For example, knowing whether a young mother lives alone, with family members (who may or may not participate in the care of the infant), and how she is balancing educational and employment goals with the tasks of developing as a parent may be key to developing support systems promoting her personal well-

---

"short"

"standard"
being as well as her parenting. This investigation suggests that young mothers and their infants are not all alike; there are distinct patterns of EA; moreover, these patterns are associated with different life circumstances. Our data also suggest that it may be important to involve both the mother and her child in efforts to increase EA, as maternal behavior did not reveal the "whole story." A relationship-based approach presumes using the relationship (in this case, the dyad) as the basic unit for observation and intervention.

Results from this investigation may help inform prevention and intervention efforts aimed at improving the parenting skills and competence as well as the life trajectories of young parents and their children. Intervention programs designed to improve the parenting skills of young parents or their life-course trajectories (education and occupation) have demonstrated mixed results (Culp, Culp, Blankemeyer, & Passmark, 1998; Furstenberg et al., 1987; Osofsky et al., 1988). In part, this may be a function of viewing young mothers as a homogeneous group. Our data suggest otherwise and support the importance of learning about mothers’ life context, both current and historical; such knowledge would promote the development of more specific interventions that work with young mothers and their infants within particular life contexts.

REFERENCES


