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Promoting Mutual Responsiveness in the Early Parent/Infant Relationship: A Preventative Intervention

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ABSTRACT

The critical role of the parent/child relationship in protecting vulnerable infants from later developmental harm is reviewed and an intervention designed to coach sensitive responsiveness in the early adolescent parent/infant relationship is described.

The literature provides us with two compelling ideas that when considered together suggest that an intervention designed to strengthen the early relationship between the primary caregiver and their infant has the potential to trigger a protective process that can prevent later developmental harm in vulnerable children. Relationships play a prominent part in the life histories of resilient children (Werner, 1990). The evidence suggests that supportive responsive relationships foster resiliency. Maternal responsiveness in the early relationship is linked to positive outcomes in children born prematurely (Beckwith & Cohen, 1989). This paper introduces a measure of responsiveness and a method to promote sensitive responsiveness in the early relationship between adolescent parents and their infants.

Review of the Literature

The quality of the first relationship between the infant and their primary caregiver¹ has critical implications for a child's later growth and development. John Bowlby (1951) first drew attention to the importance of the parent/infant relationship to the child's later health and development. Researchers suggest that relationship patterns formed early in an infant's life shape later language development and social-emotional competence in the child (Brazelton, Koslowski, & Main, 1974; Clarke-Stewart, VanderStoep & Killian, 1979; Coates and Lewis, 1984; Crockenberg, 1981; Goldberg, Lojkasek, Gartner, & Corter, 1989).

Mary Ainsworth emphasized maternal sensitivity as the central feature of the early relationship and related it to the infant's attachment behavior. She defined sensitivity as the mother's ability to perceive and interpret their infant's signals and intentions and respond quickly and appropriately (1973). Influenced by her work, subsequent studies linked maternal responsiveness in the early relationship to child outcomes in both normal and high-risk infants

¹ Although this paper addresses the general concept of caregiver/ infant interaction, it is important to recognize that most studies have collected data only on maternal behaviors. This does not deny the role of the father or others as the primary caregiver but reflects the tendency to observe the most available partner, usually the mother.

(Bornstein, 1989). Responsiveness in early mother/infant interactions, although conceptualized in different ways, consistently predicts later cognitive and social competence in the child. Studies of premature infants in particular reported that maternal responsiveness in the early relationship seemed to buffer the effects of early biological risk factors (Beckwith & Parmelee, 1986). Beckwith and her colleagues found maternal responsiveness that began in early in infancy and continued through toddlerhood was significantly related to intellectual and social competence in the child at 2, 5, 8, and 12 years of age (Beckwith & Cohen, 1984; Cohen, Parmelee, Beckwith, & Sigman, 1986; Beckwith & Cohen, 1989; Beckwith, Rodning, & Cohen, 1992), as well as Goldberg (1989), who reported that preterm infants whose mothers measured "high" in responsiveness in their first year, score higher on the Stanford-Binet at 4 years of age, and had better peer relationships and fewer school problems.

Longitudinal studies of infants exposed to both biological and psychosocial risks find that even under adverse circumstances some children appear to develop stable, healthy personalities and to display a remarkable resilience (Masten, Best, & Garmezy, 1990; Werner, 1990). The Kauai Study (Werner & Smith, 1982) reported that resilient children, who demonstrated normal development at school-age despite exposure to risk factors, had a responsive relationship with at least one caring adult early in their lives and a supportive relationship with someone outside their family during their school years.

Taken as a whole, this literature suggests that promoting responsiveness in the early caregiver/infant relationship, for infants exposed to psychosocial or biological risk factors, may prevent later developmental harm by triggering a protective process. The following question is raised; Is sensitive responsiveness in the early caregiver/infant relationship part of a protective process that promotes resiliency in high-risk children? To answer this question we need a method for measuring responsiveness which in turn can be used to evaluate the effectiveness of interventions designed to alter responsiveness in the early parent/child relationship.

A New Approach to Measuring Responsiveness: Dyadic Mutuality Code

There are problems with the present approaches to the measurement of responsiveness in the caregiver/infant relationship because they focus on individual behaviors and often exclude the relational aspect of responsiveness (Biringen & Robinson, 1991). The separate observation and measurement of each member's individual behaviors reflect the assumption of many developmental researchers that the meaningful characteristics of the relationship are the ways each member behaves separately rather than their behavior as part of a dyadic interactive system. Martin reminds us that human relationships are composed of two aspects, the experience of the individual self in relation to the other and the experience of the self as part of something greater, a relational unit which is more than the sum of the parts (1989, p.6). Individual variables measure the experience of self as an independent entity, and relationship variables measure the experience of self within the dyadic system. He recommends that to thoroughly understand responsiveness within the context of a relationship, measures should include both individual and relationship variables.

In the early studies of mother/infant interactions only maternal behaviors, such as positive affect, gaze, vocalization, and touch were observed. As a result of the work of Brazelton and his colleagues who emphasized the importance of viewing the interactive system as a reciprocal process in which each member of the dyad sensitively observes and adjusts their personal behavior to that of the other member, researchers began to assess the behaviors of both the infant and mother during face-to-face interaction (Brazelton et al., 1974). Studies which followed measured responsiveness in the relationship by making separate observations of each partner in relation to the other, but few measured responsiveness in the dyadic interactive system (Bakeman & Brown, 1977; Tronick, Als, & Brazelton 1980). Even the studies by Beckwith and her colleagues, who identify maternal responsiveness as a consistent characteristic of mothering embedded in the early relationship, concentrate on measures of maternal behavior (1989). Biringen and Robinson (1991) noted that the relational aspect of responsiveness is missing from most of these measurement approaches.

The Dyadic Mutuality Code² (Censullo, 1991) is specifically designed to measure responsiveness in the early face-to-face interactions of mothers and their infants (from birth to six months of age) as a behavioral rating scale. Responsiveness is assessed in both the individual behaviors of caregiver and infant and in the dyadic behavior as a relational unit. The Dyadic Mutuality Code* contains 6 items that represent key components of responsive infant-mother interactions: mutual attention, positive affect, turn-taking, maternal pauses, infant clarity of cues, and maternal sensitive responsiveness. Each item is scored 1 or 2, and summed for a total score which is converted to a summary rating of the level of responsiveness. A total score of 10-12 is rated "Responsive", 9 and below is rated "Unresponsive". The parent is asked to position the infant facing her, either on her lap or in an infant seat, and play with her child as she normally would, but without a toy or pacifier. The pair is observed for five minutes and scored immediately afterwards.

The assessment of the level of responsiveness between caregiver and infant with the Dyadic Mutuality Code forms the basis for an intervention with adolescent parents called Interaction Coaching for Adolescent Parents and their Infants (ICAP).

Interaction Coaching for Adolescent Parents and their Infants (ICAP).

Early childbearing presents a developmental crisis for teenage parents who must face the adult task of parenting before completing the developmental tasks of adolescence. Adolescent parents and their children are known to be at-risk for not achieving their full developmental potential (Hayes, 1987). The consequences of teenage parenthood include low educational and occupational achievement, repeat pregnancies, and the likelihood of remaining single (Chase-Lansdale, Brooks-Gunn, & Palkoff, 1991, Hayes, 1987). Adolescent mothers and their children,

² Originally titled the "Dyadic Mini Code" (Censullo, Bowler, Lester, & Brazelton, 1987) the instrument was renamed the Dyadic Mutuality Code in 1991. The items and structure of the instrument remain unchanged but the scoring was revised to observe and record positive affect in the mother and infant separately and the summary rating was changed from "synchrony" to "responsiveness" because responsiveness more clearly delineates the construct the instrument is intended to measure.

who have few social and economic opportunities, often live below the federal poverty level in disadvantaged environments (Brooks-Gunn & Furstenberg, 1986). Adolescent mothers tend to have higher levels of stress, lower income levels, less education, and fewer psychosocial resources than women who delay childbearing (Miller & Moore, 1990). Children born to adolescent parents are less competent academically, and socially than children born to older mothers (Brooks-Gunn & Chase-Lansdale, 1991; Hoffreth, 1987). In general, children of adolescent mothers perform less well in school and have more behavioral problems beginning in the preschool years and increasing through adolescence than children of older mothers (Kinard & Klerman, 1983).

Early studies found that adolescent mothers lacked knowledge about infant-care and practices that promote growth and development, and that they often used punitive methods of discipline (Elster, McAnarney & Lamb, 1983; Osofsky & Osofsky, 1970). Mother/infant relationship studies consistently have reported that adolescent mothers respond less sensitively to their infants; in early interaction behavior, they display fewer instances of mutual gaze, vocalizations, and touch than do older women (Field, 1980; Ragozin, Bashan, Crnic, Greenberg & Robinson 1982). Comprehensive programs for adolescent parents often include a parenting component that focus on increasing the mother's skills and knowledge of child care (Marx, 1990) but it is not known to what extent they concentrate on the early parent/infant relationship. The intervention, Interaction Coaching for Adolescent Parents and their Infants (ICAP) described in this paper was designed to strengthen the early relationship by coaching adolescent parents to respond sensitively to their infant. ICAP provides a standardized method for practitioners to use in early interventions with teen parents and their babies which is a cost-effective, less labor intensive adaptation of interaction coaching techniques used with very high-risk infant/mother pairs.

Field first described interaction coaching and used it in an intervention program for adolescent parents with premature infants (Field, Widemayer, Stringer, & Ignatoff, 1980). The technique was not reported in the literature again with teen parents but a few intervention programs with premature infants included training parents to respond sensitively to their fragile newborns (Barrera, Kitching, Cunningham, Doucet, & Rosenbaum, 1990; Rauh, Achenbach, Nurcombe,

Howell, & Teti, 1988). Currently the technique is used more often with high-risk mothers and infants than adolescent mothers. Recent research targets very high risk mothers and children, either because the mother or infant is depressed (Field, 1991; McDonough, 1993), or the infant is developmentally disabled or at serious risk for neglect and abuse (Egeland, 1991; Seifer, Clark, & Sameroff, 1991). One exception is a project by Hans, Bernstein, and Percansky (1991) who developed an assessment tool and training model to teach lay providers how to assess adolescent parent/infant relationships for the Ounce of Prevention Fund agencies in Illinois. A recent evaluation of this statewide program found the intervention group parents were substantially more likely to remain in school, become employed, and have avoided a subsequent pregnancy at 12 months post-baseline compared to a national sample (Ruch-Ross, Jones & Musick, 1992). Despite these encouraging results, the interaction coaching is not widely used by providers with adolescent parents, perhaps because there is little training for professional in the technique.

The ICAP intervention is different from those just mentioned because it is designed specifically for nurses, social workers and child care teachers. The training builds upon their ongoing relationship with the family, and their prior professional and educational experiences. The use of interaction coaching as a teaching strategy applies adult learning theory (Knowles, 1972) to adolescent parents, who are expected to master the adult task of parenting while still accomplishing the developmental tasks of childhood. The intervention begins in the newborn period because it is in this critical time that adolescent parents are not only available but also motivated to learn. The intervention can potentially effect both the parent and child because the achievement of effective communication with the infant increases the adolescent's sense of parenting competence and general self-esteem, while the achievement of mutual responsiveness in the early relationship provides the infant with a successful experience of relatedness upon which to build future relationships.

The ICAP intervention is proposed to tap a protective process based on Rutter's model of resiliency (1987). According to this model, successful mastery of a skill that is important to a person at a critical transition point, heightens self-esteem and sets into motion a protective process

that leads to further developmental success. By participating in the ICAP intervention, new adolescent parents have the opportunity to learn to respond sensitively to their newborn and the recognition of the success, provided by the positive feedback from their child and coach, enhances their sense of parenting effectiveness and self-esteem. An adolescent mother's self-esteem is closely associated with the quality of parenting she can provide (Lindsay, 1990). Therefore, the earlier the intervention to improve the quality of the relationship begins, the better the adolescent feels about her parenting effectiveness, which in turn increases feelings of general self-worth. An adolescent mother's participation in ICAP builds confidence in her ability to parent at a moment when she feels a compelling desire to succeed as a parent. According to Werner (1990), a process that strengthens self-esteem and self-efficacy has the potential to shift the balance from vulnerability to resilience.

Report of Pilot Work

A small pilot project, supported in part by a grant from the Woods Hole Foundation to the Early Childbearing Program of Upper Cape Cod, used the Dyadic Mutuality Code as a guide for interaction coaching and tested the ICAP intervention procedure (Censullo, 1993). The purpose of this pilot study, the first in a series of projects to develop and test the effectiveness of interaction coaching with adolescent parents and their infants, sought to determine whether the level of responsiveness in parent/infant interactions increased as result of the intervention and if parents scores on self-esteem and parental confidence measures improved after the interaction coaching sessions.

Sample. This small exploratory project used a pretest/post-test design with a convenience sample of 12 adolescent parents (9 mothers and 3 fathers and their infants). Six mothers attended an ongoing parent support group during the day, and 3 mothers (who attended school during the day) and the 3 fathers of their babies attended a group held in the evening. All the parents participated in the same early childbearing program which provides services to a middle to lower-middle class community in Cape Cod, Massachusetts. Because the groups were small and the

participants were from the same lower socioeconomic level. we combined data from both groups for the analysis. Parents had an average age of 17 years (average age did not differ between mothers and fathers) and the infants had an average age 4 months with none over 8 months of age. Three (30%) of the mothers and 1 father did not complete high school, 7 (58%) did not live with a family member, and 6 (50%) had a history of being abused (four mothers). Four (30%) of the parents (2 women and 2 men) had completed or were participating in a program for substance abuse, and 2 fathers were on probation.

Procedure. The investigator asked parents if they would like to participate in a group that teaches new parents how to communicate with their infants and seemed to help parents of premature babies. The intervention consisted of four group sessions. Prior to the intervention the investigator obtained signed consent forms from the parents. Before and after the intervention, the investigator observed and scored the level of mutual responsiveness in parent/infant interaction using the Dyadic Mutuality Code (Censullo, 1991). In addition, parents completed questionnaires containing items from the Rosenberg Self-Esteem Scale (Rosenberg, 1967) and a parental self-efficacy measure (Sirigano & Lachman, 1985).

The intervention used the parent's actual experience with their infants to coach sensitive responsiveness by sequencing assessment, explanation, demonstration, and positive reinforcement. The intervention began with an observation and assessment of the specific behaviors of each parent/infant pair with the Dyadic Mutuality Code. This information provided a framework for the intervenor to guide the coaching process. The coach makes suggestions that extend the interaction (for example, suggesting to the parent to position their face further from their infant's face, or use longer pauses, imitation, or less stimulation). The infant's responses reinforce the self-directed learning experience. The parent is taught to recognize their infants' individual cues as indications of success. Any adult who has elicited a smile or vocalization from a newborn infant, no matter how subtle, knows the powerful reward and reinforcement it is. The investigator conducted the intervention in a group which capitalized on peer support, another influential reinforcement in adolescent learning.

Results. Comparison of the scores on the responsiveness measure indicated a significant improvement as a result of the intervention; total scores ranged from a mean of 8.5 (SD 1.22) before to a mean of 10.8 (SD 0.84) after the intervention, the McNemar's test of change in before and after dichotomous scores of Low (0=total score of 9 or below) and High Responsiveness (1=total score of 10 and above) was significant (Chi Square=5.1, $p<.05$). T-test analysis used to compare mean scores on the other self-concept measures showed a significant increase in self-esteem ($T= 9.49$, $p<001$), and nonsignificant results for parental confidence scores. Mean scores for self-esteem were 28.4 (SD 9.9) before and 32.9 (SD 8.2) after the intervention, and parenting confidence rose from a mean of 40.6 (sd 6.2) to 41.5 (sd 1.2). Three months after the intervention a home visit was made to each family. Data on school participation as a follow-up measure indicated that 3 mothers (from the support group held during the day) who were not enrolled in school programs at the start of the intervention were now enrolled and 2 of the evening group fathers talked of plans to join the military in order to continue their education. Observations of responsiveness indicated the gains made by parents who increased their level of responsiveness continued at the time of the follow-up visit.

Discussion. The level of responsiveness in parent/infant interactions increased after the interaction coaching. Interestingly, 4 of the parents (3 mothers and 1 father) with the lowest responsiveness scores before the intervention showed the most improvement in responsiveness after the intervention. Parental self-esteem scores were significantly higher after the intervention when compared to the scores before the first session, while parental confidence scores increased only slightly. Interaction coaching reached the adolescent fathers, who are traditionally less involved in the parenting. The 3 fathers (although a very small number) attended the intervention sessions regularly and participated equally with the mothers. The intervention seemed to capture their interest, which was surprising, given the fact that adolescent fathers are difficult to engage in services.

The encouraging results of the study indicate a need for a longitudinal demonstration and evaluation project, with a larger more diverse sample, a randomized experimental design, and

stronger outcome measures for both parent and child. The enduring effect of mutual responsiveness in the relationship is probably contingent on the fact that it continues beyond toddlerhood. Repeated assessment will be necessary during childhood and other developmentally appropriate interventions will have to be designed which nurture and support sensitive responsiveness early in the parent/child relationship.

Our next step was to determine if the intervention was of critical interest to practitioners who work with adolescent families regularly. A survey of agencies offering child care programs to adolescent parents (cosponsored by the Alliance for Young Families and the Center for Research on Women) conducted with Fern Marx revealed some interesting results. We had a 60% response rate to a questionnaire sent to over a hundred programs for adolescent parents that included a child care component. The directors of the programs were the most frequent respondents. Half of them checked that the parenting component of their programs included "mutually responsive interactions", but less than a quarter checked that the staff had received training on this topic, and 100% indicated that they were interested in sending staff to a training on interaction coaching. The services for adolescent parents and their infants were by practitioners from multiple disciplines including (in terms of frequency); social workers (31), nurses (15), child care workers (14), and parent aides (12). Comments such as, "Wonderful, just what we need most", "Happy to see this happening", "We are very interested in this program and anxious to participate", "We would love to be part of this project - It fits very well with our early intervention program". indicated the interest and enthusiasm for the training in interaction coaching. From these results, we concluded that mutually responsive interactions is valued as an important component of interventions with adolescent parents, that a method of interaction coaching is not regularly offered in inservice programs, and there was an overwhelmingly positive interest in participation in the training.

In summary, the evidence suggests that the early adolescent parent/infant relationships place the child at risk, because adolescent mothers respond less sensitively to their infants than older mothers (Elster et al., 1983). In practice, there are few providers who routinely intervene in the parent/infant relationship because they lack training in in a method of how to coach parents to

respond more sensitively to their newborn infants. There is a need to teach practitioners interaction coaching techniques. The interaction coaching intervention used in this pilot project provides a method that is easy-to-learn and simple to use. The technique can be integrated into the routine care provided to all new adolescent parents without increasing the number of staff or client visits. The pilot indicated that the interaction coaching is adaptable for use in clinic, home, or school settings, has the flexibility to be used with individuals or groups, and has the potential to reach adolescent fathers.

Conclusion

Does coaching responsiveness in the early relationship shift the balance from vulnerability to resiliency for adolescent parents and their infants? Does the intervention trigger a protective process? A longitudinal study is needed with a diverse sample to provide the data to answer these questions. The ICAP intervention provides a standardized method to assess and coach sensitive responsiveness in the early parent/infant relationship. It fits very well with early intervention programs that include parenting components. The intervention has the clinical advantage of being integrated into the routine care provided to all new adolescent parents without increasing the number of staff or client visits. Pilot work indicates that the intervention technique is adaptable to different settings, has the flexibility to be used with individuals or groups, and has the potential to reach adolescent fathers, who are traditionally less involved in parenting. No intervention can remove all the stress and adversity from the lives of vulnerable adolescent mothers and their children, but by coaching parents to respond sensitively to their infants, providers can take advantage of a powerful opportunity to build parenting competence and confidence at the same time they are fostering the child's healthy development. Much work needs to be done. We are just arriving at the point from which to begin.

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