

Changing Toddlers' and Preschoolers' Attachment Classifications: The Circle of Security Intervention

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The Circle of Security intervention uses a group treatment modality to provide parent education and psychotherapy that is based on attachment theory. The purpose of this study was to track changes in children's attachment classifications pre- and immediately postintervention. Participants were 65 toddler- or preschooler-caregiver dyads recruited from Head Start and Early Head Start programs. As predicted, there were significant within-subject changes from disorganized to organized attachment classifications, with a majority changing to the secure classification. In addition, only 1 of the 13 preintervention securely attached children shifted to an insecure classification. Results suggest that the Circle of Security protocol is a promising intervention for the reduction of disorganized and insecure attachment in high-risk toddlers and preschoolers.

Keywords: Circle of Security, high-risk children, intervention, preschool attachment, prevention

Over the past several decades, clear evidence has emerged that the quality of the relationship between caregiver and child in the first years of life is central to a child's later functioning (e.g., Thompson, 1999, 2001; Zeanah, 2000). Much of this evidence comes from researchers working within the framework of attachment theory who have noted patterns of individual differences in attachment quality that can be identified reliably in both the behavior and the internal representational models of both parent and child (e.g., Ainsworth, Blehar, Waters, & Wall, 1978; Brether-

ton & Munholland, 1999; Britner, Marvin, & Pianta, 2005; Sroufe, Egeland, Carlson, & Collins, 2005; Weinfield, Sroufe, Egeland, & Carlson, 1999). There is converging evidence that attachment quality has an important influence on the success of a child's developmental pathway toward self-reliant adulthood (Carlson & Sroufe, 1995; Kobak, Cassidy, Lyons-Ruth, & Ziv, 2006; Sroufe et al., 2005; Thompson, 1999). Insecure attachment patterns are not in themselves typically considered indicators of psychopathology but are instead viewed as heightening the risk of psychopathology when occurring in the context of additional risk factors (Greenberg, 1999; Kobak et al., 2006; Sroufe et al., 2005). Moreover, there is increasing evidence that one particular attachment pattern during infancy and the preschool years—*disorganized attachment* (Cassidy & Marvin, 1992; Main & Solomon, 1990)—may be a particularly important risk factor for maladaptive outcomes (Lyons-Ruth & Jacobvitz, 1999; Moss, Cyr, Bureau, Tarabulsy, & Dubois-Comtois, 2005; Sroufe et al., 2005). Given this substantial body of evidence that insecure attachment (and perhaps particularly insecure/disorganized attachment) is a risk factor for later psychopathology, attempts to reduce the risk of insecure and disorganized attachment are particularly important (see also Berlin, Ziv, Amaya-Jackson, & Greenberg, 2005).

Because of the importance of reducing the risk of insecure attachment, attempts to develop systematic, replicable, effective approaches to support more adaptive developmental trajectories for at-risk parent-child relationships have, in the past 2 decades, become the focus of increasing research (e.g., Zeanah, 2000). Attachment theory, especially in combination with other components of current developmental theory and research, has inspired a number of intervention programs for infants, toddlers, and their parents (see Berlin et al., 2005; Lieberman & Zeanah, 1999; van IJzendoorn, Juffer, & Duyvesteyn, 1995). Because attachment is a relationship-based construct, most of these programs have deliv-

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This project was supported by U.S. Department of Health and Human Services University-Head Start Partnership Grants 90YF0018 and 90YD0108 and by a grant from the FHL Foundation of Albuquerque, New Mexico.

We thank Susan McDonough, James Masterson, Ralph Klein, and David Erb, whose work initially inspired this project. We thank Jude Cassidy for her wise counsel and hard work over the years. In addition, we thank William F. Whelan, Jeffrey A. Olrick, Nancy S. Weinfield, Susan S. Woodhouse, Miranda Filippides, Susan Paris, Lisa J. Berlin, Kathleen L. Whitten, Jonathan J. Mohr, Howard Steele, Miriam Steele, Susan Spieker, Molly Kretchmar-Hendricks, and Kristin Bernard for their invaluable help. We are also grateful to the children, caregivers, and Spokane research affiliates who gave so generously of their time for this research.

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ered the interventions to caregivers. The usual goal of the programs has been to improve the caregivers' sensitivity to infant attachment and exploratory signals, with the assumption that this will, in turn, increase the likelihood that the infant or toddler will develop a secure attachment to that caregiver.

Although there is evidence from individual laboratories of successful outcomes of particular interventions (e.g., Anisfeld, Casper, Nozyce, & Cunningham, 1990; Lieberman, Weston, & Pawl, 1991; Lyons-Ruth, Connell, & Grunebaum, 1990; van den Boom, 1988, 1994), there is currently disagreement among attachment researchers about the efficacy of these relatively few existing intervention models. Some researchers provide a summary assessment of the success of previous attempts as "marginally successful" (i.e., Egeland, Weinfield, Bosquet, & Cheng, 2000), whereas others view these as "rather successful" (i.e., van IJzendoorn, Bakermans-Kranenburg, & Juffer, 2005; see also Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). What is clear, however, is that there continues to be a need for researchers to examine the effectiveness of interventions designed to reduce the risk of insecure attachment.

Although many intervention programs discussed in the aforementioned studies have been significantly influenced by attachment theory and research, none has contained a systematic treatment protocol that is itself based not only on caregiver patterns of behavior and caregiver representations but also on an analysis of the attachment classifications developed in attachment research (secure, insecure, and disorganized). Given the significant role that the specific patterns of attachment play in the developmental trajectory of children, and the promise that enhancing early attachment patterns holds for more positive developmental outcomes, we propose that protocols are needed that individualize treatment on the basis of the diagnostics inherent within attachment theory. In other words, we believe that much can be gained from the use of individualized intervention plans that are informed by each child's attachment classification. By understanding a child's classification, we can better understand what that child has learned about being in a relationship with his or her caregiver and, thus, better understand the specific caregiver-child affective and behavioral patterns that need to be the focus of intervention.

The present study was designed to assess the effectiveness of a new group-based intervention protocol, the Circle of Security (COS), which was developed by drawing on the dynamics of secure and insecure attachment patterns. The intervention contains both educational and therapeutic components (Marvin, Cooper, Hoffman, & Powell, 2002). Five key goals of the protocol are to (a) establish the therapist and the group as a secure base from which the caregiver can explore his or her relationship with the child; (b) increase caregiver sensitivity and appropriate responsiveness by providing caregivers a map of children's basic attachment needs; (c) increase caregivers' capacity to recognize and understand both the obvious and more subtle verbal and nonverbal cues that children use to signal their internal states and needs when using the caregiver as a secure base for exploration and as a haven of safety; (d) increase caregiver empathy by supporting reflection about both the caregiver's and the child's behaviors, thoughts, and feelings regarding attachment-oriented interactions; and (e) increase caregiver reflection about how his or her own developmental history affects current caregiving behavior.

In developing the protocol, one working assumption was that, when taught to caregivers in a user-friendly manner, attachment theory can be understood and will prove useful to caregivers when interacting with their children. In formulating this approach to teaching attachment theory, we reduced the formal theory and classification system to a small number of core concepts. These core components include how the parent serves as a secure base from which the child can explore and as a safe haven to which the child can return in times of trouble; how secure children typically signal wishes for attachment and exploration directly, whereas insecure children typically send misleading messages (miscues) regarding those wishes; how these misleading messages are part of an insecure child's (nonconscious) strategic attempt to maintain connection with the caregiver; and how, because a child thrives when the caregiver is relatively responsive to both attachment and exploratory behavior, it is important that the caregiver consider what may hinder sensitive responsiveness to particular aspects of the child's behavior.

The COS protocol differs from previous intervention approaches in several ways. First, COS uses each child's attachment classification coded from the Strange Situation, along with the mother's attachment-related behaviors and representations, as the basis for formulating an individualized approach for each dyad. Second, our approach focuses on both caregiver behavior and caregiver mental representations (see Berlin et al., 2005, for discussion of the narrower foci of most previous interventions). Third, we give caregivers a graphic image titled "The Circle of Security" (see Figure 1) that contains clear representations of a child's core needs for exploration and attachment. Fourth, we give caregivers language to understand defensive processes (which we call "shark music"), thus inviting caregivers to become partners in reflecting on how certain behaviors in themselves and their children are triggered by (nonconscious) anxiety. Fifth, COS has a standardized, video-based group model designed to deliver a systematic, week-by-week protocol to participants (Marvin et al., 2002).

To begin evaluating this intervention, we recruited a sample of at-risk toddlers and preschoolers and each child's primary caregiver from Head Start and Early Head Start programs. Because funding limitations precluded the use of a randomized trial with a control group, we used a pretest-posttest longitudinal design to examine shifts in child attachment classification. The goal of the research project was to examine whether the COS intervention would prove effective in reducing attachment disorganization and insecurity. Specifically, we had two hypotheses: After intervention, there would be (a) a significant decrease in disorganized attachment classifications and (b) a significant decrease in insecure attachment classifications.

Method

Participants

Participants were toddlers and preschool children and each child's primary caregiver recruited from Head Start and Early Head Start programs in a medium-size city in Washington state. Recruitment took place at five sites, after each site had received inservice education about the development of parent-child relationships from the project staff. Because this was a protocol-development study rather than a formal efficacy study, caregivers were recruited. The primary criteria were parent availability to partic-

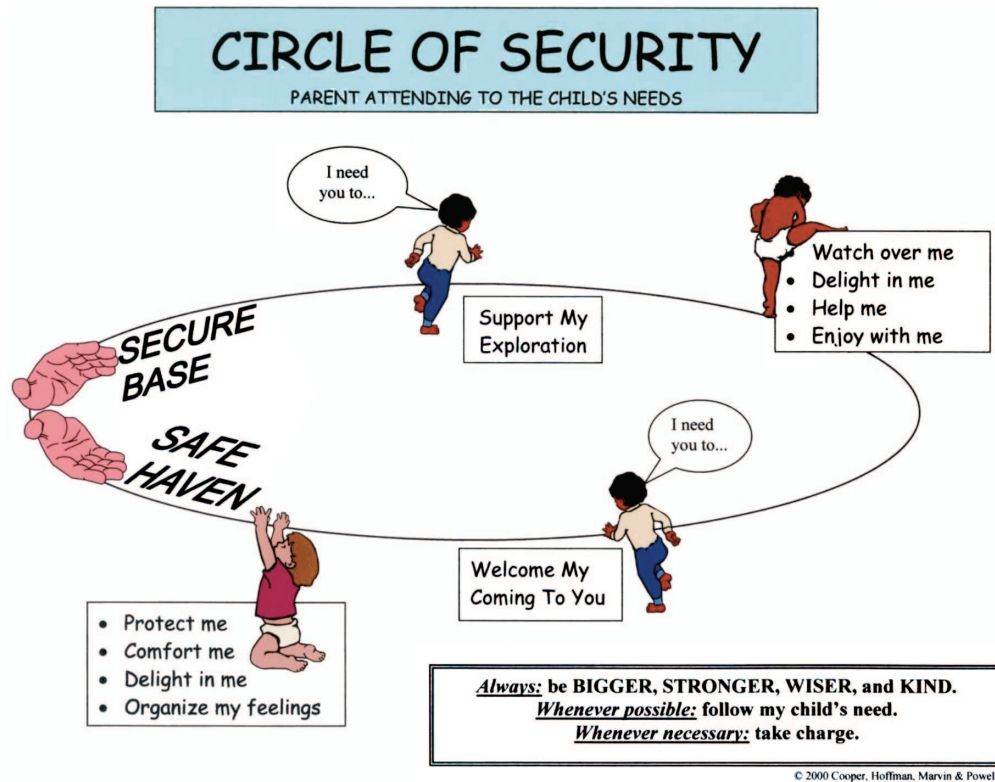


Figure 1. Graphic representation of the Circle of Security. Reprinted with permission of the copyright holders. Copyright 2000 by Glen Cooper, Kent T. Hoffman, Robert S. Marvin, and Bert Powell.

ipate in the group and a history of regularity in bringing the child to the center or having the child available for services if the Head Start Family Service coordinator came to the home. From that sample, which comprised approximately 25% of the Head Start families, teachers were asked to rank the families from lowest to highest functioning. Families that fell in the middle third of that group were invited to participate. With few exceptions, invited families agreed to participate. The project and procedures were thoroughly explained to potential participants, and informed written consent was obtained separately for the intervention and for each assessment.

Eighty-seven dyads met these initial criteria and were originally recruited and participated in the preintervention assessment. Eleven of the recruited caregivers made the decision not to participate beyond the assessment. One dyad was excluded because, on interview with the clinician, the parent displayed virtually no ability to reflect about her child or herself and displayed much ambivalence about participating. Thus, 75 (86%) of the originally recruited dyads began the intervention phase. Sixty-five dyads (87% of those who began the intervention; 75% of those originally recruited) completed the intervention and postintervention assessment.

In all cases, the caregiver completing the intervention was the same caregiver who participated in the pre- and postintervention assessments. The caregivers ranged in age from 16 to 55 years ($M = 23.8$ years, $SD = 6.8$). Thirty-five (54%) of the 65 children were girls, and the mean age of these children at the time of the preintervention assessment was 32 months ($SD = 12.6$; range = 11–58 months, with 12 [18%] children younger than 18 months of age at that time). Thirty caregivers (46%) were single, 18 (28%) were married, and 17 (26%) had partners to whom they were not married. The 65 caregivers in the final sample included mothers (86%), fathers (6%), foster parents (6%), and 1 grandmother (2%). Consistent with the community in which the intervention was conducted, 86% of participants were White/Caucasian. All of the families were living below the federal poverty line.

Detailed information on other variables regarding level of family risk that would be of interest to this project was not available to the project team. From discussions with the caregivers over the 6-month intervention, however, it was clear that this was a significantly high-risk sample. The majority of caregivers reported that they were living in violent neighborhoods and that they had themselves experienced some maltreatment or other trauma during their own childhoods. A minority of caregivers had at some point maltreated their own children. One parent did not complete the study because she lost custody of her child during the 6-month intervention period.

Procedure

A preintervention–postintervention design was used to examine intervention effectiveness, with child attachment as the outcome measure. Before the intervention began, participants were seen in a laboratory session that lasted approximately 90 min. Data gathered during this session served two functions. First, these data were used to create each participant's individualized treatment plan, and second, the Strange Situation procedure was used as the preintervention assessment of the child's attachment security. Approximately 6–8 weeks later, the intervention began and continued for 20 weekly sessions. Within 10 days after the final intervention session, participants were again seen in a 90-min laboratory session during which the postintervention assessment of child attachment security was obtained.

COS Intervention

As noted earlier, the intervention is based on an individualized treatment plan for each dyad. In this section, we first describe the creation of the

individualized treatment plan, and then describe the intervention. We end this section with a discussion of intervention fidelity.

Individualized Treatment Plan

Development of the individualized treatment plan consisted of a number of steps: (a) identification of caregiver–child interaction patterns, including child attachment classification; (b) identification of caregiver developmental history and internal working models of self and child; and (c) identification of a key (“linchpin”) issue that would be the focus of therapeutic work.

Identification of child attachment and caregiving interaction patterns. Identification of these interaction patterns was based on behavioral observations of the caregiver and child that took place in the laboratory and lasted approximately 30 min. The first procedure, depending on the age of the child, was either the Ainsworth Strange Situation (Ainsworth et al., 1978) or the MacArthur Preschool Strange Situation (Cassidy & Marvin, 1992). Both versions of the Strange Situation are approximately 21-min procedures involving a free-play episode, the entrance of a friendly adult stranger, and two separations and reunions between child and caregiver, with the stranger present in some but not all of those episodes. The Preschool Strange Situation procedure has only minor changes from the infant–toddler version: The parent is less constrained in his or her behavior during free play, separation, and reunion; the caregiver is allowed to negotiate with the child on separation; and the parent is not specifically asked to pick up the child at the beginning of the second reunion. These minor changes were made to fit the more advanced locomotor, social–cognitive, communicative, and emotion-regulation skills of these older children (see Cassidy & Marvin, 1992). Each child’s pattern of attachment was classified from the videotapes of the Strange Situation according to coding criteria for Ainsworth’s infant system (Ainsworth et al., 1978) or Cassidy and Marvin’s (1992) preschool system; caregiver interaction patterns in the Strange Situation were assessed using the Caregiver Behavior System (Britner et al., 2005; Marvin & Britner, 1995). Immediately following the completion of the Strange Situation procedure, the experimenter entered the room, gave the caregiver a few age-appropriate children’s books, and said, “Here are some books that the two of you can read together for a few minutes.” The experimenter then left the room, and the caregiver and child were videotaped for 5 min. Then, at a preset signal from behind the one-way window, the caregiver attempted to get the child to clean up and return the toys to the toy box. This sequence too was videotaped for 5 min. (All videotaped procedures were used not only to create the intervention treatment plan but also to provide the clinical team with edited video clips to use during the intervention. The child attachment assessment—but no other interaction measures—was also used to assess intervention effectiveness.)

Identification of caregiver developmental history and models of self and child. The Circle of Security Interview (COSI), conducted following completion of the behavioral observations, was used to assess caregiver developmental history and working models. This 60-min videotaped interview was designed to elicit episodic memories of the parent’s past and present parent–child interactions and relationships and to elicit the parent’s reflections on those interactions and relationships. The interview consists of 5 questions about the Strange Situation experience that the caregiver and child had just completed, 20 questions about the parent’s perceptions of the child and the relationship between them (adapted from the Parent Development Interview; Aber, Slade, Berger, Bresgi, & Kaplan, 1985), and 6 questions about the parent’s relationships with his or her own parents during childhood (adapted from the Adult Attachment Interview; George, Kaplan, & Main, 1985). This interview was used to design the individualized intervention goals for each dyad by providing at least three types of information: historical information about the caregiver’s relationships with his or her own parents and about the caregiver’s relationship with the target child, information about the attachment–caregiving relationship between

the caregiver and the target child, and information regarding the caregiver’s internal working models (including discourse patterns and defensive strategies) of close family relationships.

Creation of the linchpin issue. On the basis of information gathered in both the observational procedure (child attachment classification and caregiver classification) and the COSI, the linchpin issue for each dyad was defined as the single, most problematic pattern of attachment–caregiving interaction and caregiver internal working model that, if successfully changed, was expected to have the greatest positive impact on the child’s attachment pattern. This linchpin issue was carefully formulated in terms of both caregiver–child interaction and caregiver defense against his or her own painful feelings regarding that problematic interaction pattern (for additional details, see Cooper, Hoffman, Powell, & Marvin, 2005; Powell, Cooper, Hoffman, & Marvin, in press). The specific video segments used for review with a caregiver, along with the individualized strategy selected to increase the caregiver’s capacity to reflect on his or her caregiving behavior, were chosen to address this specific linchpin issue. For example, the linchpin issue for one caregiver was her fear of assuming the parental role, made obvious in her consistent choice to “give in” to her 4-year-old child’s punitive, controlling behavior on reunion in the Strange Situation.

Intervention Protocol

The 20-week intervention took place in groups of five to six caregivers; each weekly group meeting lasted 75 min. This intervention was implemented by three experienced psychotherapists (Glen Cooper, Kent T. Hoffman, Bert Powell), each responsible for five separate groups over 3 years. The initial 2 weeks of the intervention protocol used an educational approach to offer caregivers an explanation of attachment theory via video examples of their children expressing basic attachment and exploration needs that were identified on the COS graphic. Across the next 18 weeks, group meetings focused on individual caregivers, with each caregiver being the focus of three sessions. During these sessions, the therapist followed a detailed, manualized protocol and used edited video clips of that caregiver and child as a springboard to discuss the relationship. The specific sequence of activities and goals can be summarized as follows:

1. Through a series of activities, including review of videos of interactions between each caregiver and the child, the therapist and group members were established as a secure base for each caregiver to explore his or her relationship with the child.
2. As noted, during the first 2 weeks, caregivers were introduced to the COS graphic and learned a user-friendly version of attachment theory, focusing on secure patterns of attachment. For example, the group watched a videotape in which one of the caregivers and his 3-year-old son entered the playroom for the first time. The child ran across the room, picked up a toy, looked around at the new setting, and then ran back to his father with whom he shared the toy. The father, referencing the COS graphic, learned that, as his son goes out into the room to explore, there is a point at which the child realizes that he is in an unfamiliar setting and chooses to come back to his father to feel more secure, thus “completing the circle.”
3. Through detailed and repeated review of edited video clips, the therapist attempted to help each caregiver improve his or her capacity to read and respond to the child’s cues and miscues regarding attachment and exploration. For example, in one video review, a 4-year-old boy miscued his mother during reunion by turning away from her and demanding to be alone. She interpreted his distance as his not needing her, even though she had watched videotape of his suspending play and standing by the door glumly during her entire 3-min absence. The mother learned that when her son is upset he manages his distress by pouting and

pulling away (miscue) rather than by directly showing her his need for comfort.

4. Through focusing on videos illustrating each caregiver's specific linchpin issue, the therapist developed a nonjudgmental dialogue with the caregiver that supported self-reflection about these linchpin struggles in attachment-caregiving interactions. This process is viewed as the central dynamic for change (Fonagy, Steele, & Steele, 1991). For example, a young mother intrusively pursued her son as he sought a toy during play, which precipitated his pulling away as he attempted to explore; the son's refusal to play with the mother triggered her chilly withdrawal. On seeing this interaction in video review, and through reflective dialogue with the therapist, the mother recognized that she viewed her son's independent exploration as confirming her belief (negative attribution) that he does not want to be with her. In addition, she began to recognize that she typically manages the pain of his perceived rejection by withdrawing her support and creating distance. Further dialogue with the therapist led to her realization that her son needs her regardless of his activities and that when she supports his exploration he naturally comes back to her for connection when he is ready.
5. When initiated by the caregiver, the therapist supported reflection about how that particular caregiver's own developmental history may have influenced his or her current caregiving behavior. Because the COS protocol normalizes and gives a name ("shark music") to previously nonconscious anxiety about specific needs on the circle, some caregivers spontaneously report memories of how these same needs were not met in their own childhood. For example, a mother viewing how she encouraged her 3-year-old daughter's overtly childish behavior suddenly remembered how her own mother had often asked her to "never grow up." This led to specific memories of not feeling permission to explore her own autonomous experience throughout her childhood. Feeling the pain of this limitation, she decided to not repeat it with her daughter.
6. With further video review, discussion, and practice, the therapist supported the caregiver's ability to see the child's needs with greater empathy ("empathic shift"; Cooper et al., 2005). This empathy consists of an increasing recognition that the child's miscues, and much of his or her difficult behavior, reflect valid attachment and exploratory wishes rather than a negative characteristic of the child (e.g., disliking the caregiver, wanting to hurt the caregiver; for a similar perspective, see Fonagy, Gergely, Jurist, & Target, 2002, on reflective functioning). For example, once the mother of the boy (described above) who was pouting on his mother's return was able to view his turning away from her as a miscue, she was able to experience empathy for his struggle in showing a direct request for closeness. This led her to consider a new choice to comfort him when he is upset and distant rather than to punish him.
7. The intervention ended with a structured celebration of the caregivers' increased sensitivity in caring for the child.

Intervention Fidelity

Fidelity was maintained by following a detailed, written manual consisting of specific goals, plans for achieving those goals, and activities for each group session. Plans for each session were reviewed prior to that session, and video excerpts to be reviewed during that session were determined by following the plan in the manual. Each session was thus organized around the prepared video edits. All sessions were videotaped,

and debriefing meetings were held after each group session. This procedure assisted in keeping the work focused and consistent with the curriculum across therapists. In addition, implementation and documentation of each tape review session were guided by a written "tape review sheet" completed by the therapist.

Several steps were taken to ensure that participants received the full intervention protocol. First, during the early parent-education phase of the work, care was taken to ensure that any parent who missed an educational session received this material in a "catch-up" session. Second, during the later psychotherapeutic phase of the work in which caregivers took turns (1 each session) reviewing their own videotaped interactions with their child, schedules were adjusted as necessary so that all caregivers had several opportunities to participate in such individualized sessions. Finally, a plan was established to discontinue a caregiver's participation if he or she missed more than 4 of the 20 sessions. Two caregivers were dropped from the study for this reason. Thus, all participants attended at least 85% of the sessions.

Assessment of Intervention Effectiveness: Child Attachment

Assessment of intervention effectiveness was based on measuring child attachment at 6–8 weeks prior to intervention and again approximately 10 days following the completion of the 20-week intervention.

Following receipt of informed consent (IRB approval was obtained through the University of Virginia), each child-caregiver dyad was videotaped in the Ainsworth Strange Situation (Ainsworth et al., 1978) if the child was younger than 24 months of age. For children between 24 and 60 months, the dyad participated in the MacArthur Preschool Strange Situation (Cassidy & Marvin, 1992). For children younger than 18 months of age, the Ainsworth (Ainsworth et al., 1978) coding system was used to classify the toddler as secure (B), insecure/avoidant (A), or insecure/resistant-ambivalent (C). Each videotape was also coded for disorganization (D) using the system developed by Main and Solomon (1990). For children 30 months of age and older, the Cassidy-Marvin (Cassidy & Marvin, 1992) preschool coding system was used to classify the child as secure (B), insecure-avoidant (A), insecure/resistant-ambivalent (C), disorganized or role-reversed controlling (D), or insecure-other (I-O). For children between 18 and 30 months, coders (all of whom were reliable on both systems) used the generally accepted method of extrapolating between the infant and preschool systems.

To avoid confusion, a note about terminology is important at this point. During infancy and the toddler period, disorganized attachment patterns consist of complex behavioral displays that appear to be in slow motion, contradictory, incomplete, and/or apprehensive, and do not appear "organized" with respect to gaining or maintaining proximity or contact when the child is distressed (Main & Solomon, 1990). During the preschool period, some children still appear disorganized and relatively incoherent (classified "insecure-other"), and other children are role-reversed controlling. In this study, both of these groups ("role-reversed controlling" and "insecure-other") were considered to be subsets of a larger "disorganized" group. Likewise, the three patterns (secure, avoidant, and resistant-ambivalent) originally identified by Ainsworth (1978) were considered to be subsets of a larger "organized" group. The reader should be careful not to equate these labels with the words *organized* and *disorganized* as used in colloquial speech.

All coders providing the classifications used for data analysis were blind to pre- versus postintervention status (i.e., Robert S. Marvin, who coded the preintervention assessments as part of planning the individualized treatment plans, was not one of these coders). The following procedure was used to ensure coder blindness: After all postintervention assessments had been completed, each Strange Situation was assigned a randomly generated identifying code, and all identifying information regarding name and time of assessment was deleted from each tape. All 130 Strange Situation

procedures (65 preinterventions and 65 postinterventions) were coded by one of three different coders who was reliable on both the infant and preschool system and who was blind to preintervention versus postintervention condition.

Eighty-five (65%) of the 130 tapes were randomly selected and double-coded for reliability, with disagreements being conferred to agreement. For the two combined classification systems and all major attachment groups (i.e., A, B, C, D—controlling, and I-O), the five-way exact agreement was 80% ($\kappa = .74, p = .000$).

Results

Pre- and Postintervention Distributions of Major Classifications

Table 1 presents the descriptive statistics for all five major attachment classifications pre- and postintervention. Sixty percent of children were classified into one of the two highest risk groups (disorganized—controlling and insecure—other) before intervention, whereas 25% of children were classified into one of these groups following intervention. Twenty percent of children were secure before intervention, and 54% were secure following intervention.

Hypothesis Testing

As stated earlier, we hypothesized that after intervention there would be (a) a significant decrease in disorganized attachment classifications and (b) a significant decrease in insecure attachment classifications. We tested each of these hypotheses using the McNemar test, which is used to assess whether there is a significant difference between two correlated proportions. The preintervention and postintervention proportions in the current study were correlated because the preintervention and postintervention proportions were based on the same sample of subjects at two different time points.

Although the McNemar test is superficially similar to a test of independence (i.e., a 2×2 chi-square test), it is quite different in terms of the question it answers. The chi-square test allows one to determine whether there is a significant relation between variables, such that if the null hypothesis is rejected, one can conclude that there is a statistically significant relation between the variables. Naturally, we expected that there might be some degree of relation

between a child’s preintervention and postintervention classifications if for no other reason than that the same child was being assessed at both time points. Our hypotheses were concerned, however, with differences, rather than relations, between pre- and postintervention proportions of classification; thus, we used the McNemar test.

Because the McNemar test is relatively not well known, we provide an explanation of this approach. If the intervention had no effect whatsoever, we would expect that shifts from “positive” to “negative” groups (e.g., as in Hypothesis 1, from organized to disorganized) would be equally likely as shifts from “negative” to “positive” groups (e.g., from disorganized to organized). Even if the intervention had no effect, we would expect some random fluctuation between groups. That random fluctuation would result in shifts between groups being equally likely in either direction. The formula for the McNemar test statistic is as follows (Ott, Larson, Rexroat, & Mendenhall, 1992):

$$\chi_M^2 = \frac{(N_1 - N_4)^2}{N_1 + N_4}$$

where N_1 is equal to the number of cases in the cell that reflects a shift from a negative preintervention classification (e.g., disorganized or insecure) to a positive postintervention outcome (e.g., organized or secure), whereas N_4 is equal to the number of cases in the cell that reflects a shift from a positive preintervention classification (e.g., organized or secure) to a negative postintervention outcome (e.g., disorganized or insecure).

The McNemar test, then, allows for assessment of whether this null hypothesis (that shifts between groups are equally likely) should be accepted or rejected through comparison of the McNemar test statistic (χ_M^2) with critical chi-square values ($df = 1$). If the null hypothesis is accepted, then the intervention is thought to have no effect. If the null hypothesis is rejected, then the intervention can be said to have an effect. Furthermore, this procedure allows for assessment of whether shifts are more likely from the “positive” to the “negative” group or from the “negative” to the “positive” group. In the current study, the two hypotheses were of

Table 1
Attachment Classifications Pre- and Posttreatment for Five Categories

Pretreatment classification	Posttreatment classification										Pretreatment total
	Avoidant		Secure		Resistant		Disorganized—controlling		Insecure—other		
	n	%	n	%	n	%	n	%	n	%	
Avoidant	3	27.3	5	45.5	0	0.0	1	9.1	2	18.2	11
Secure	0	0.0	12	92.3	0	0.0	1	7.7	0	0.0	13
Resistant	1	50.0	1	50.0	0	0.0	0	0.0	0	0.0	2
Disorganized—controlling	2	10.5	8	42.1	5	26.3	0	0.0	4	21.1	19
Insecure—other	1	5.0	9	45.0	2	10.0	1	5.0	7	35.0	20
Posttreatment total	7		35		7		3		13		65

Note. Percentages provided reflect the percentage of children classified in each attachment group at Time 1 (listed in rows) who were then classified in each attachment group (listed in the columns) at Time 2.

interest: one involving a shift from disorganized attachment and one a shift from insecure attachment. If such shifts were found, then the McNemar test would allow us to determine that there was a significant reduction in the occurrence of disorganized and insecure classifications postintervention.

Hypothesis 1

To examine whether there was a significant decrease in disorganized attachment classification, we created the disorganized and organized categories by collapsing the relevant attachment classifications into their respective groups. Disorganized (infant classification), disorganized-controlling (preschool classification), and insecure-other (preschool classification) groups were collapsed to form the disorganized group. Secure, avoidant, and resistant were pooled to form the organized group. We used the McNemar test to examine the null hypothesis that shifts from organized to disorganized attachment or from disorganized to organized attachment would be equally likely. As can be seen from Table 2, the null hypothesis was rejected: Shifts from organized to disorganized and from disorganized to organized were not equally likely, $\chi^2_M(1, N = 65) = 17.06, p < .001$. Movement from disorganized to organized classification was more likely than movement from organized to disorganized classification: Sixty-nine percent of the 39 children in the preintervention disorganized group moved to the postintervention organized group, whereas only 15% of the 26 children in the preintervention organized group moved to the postintervention disorganized group. In other words, based on the McNemar test, there was a significant decrease in disorganization after intervention.

Hypothesis 2

To examine whether there was a significant decrease in insecure attachment classifications, we created the insecure group by collapsing the avoidant, resistant, disorganized, disorganized-controlling, and insecure-other groups; we compared these children with those classified secure. We used the McNemar test to examine the null hypothesis that shifts from secure to insecure and from insecure to secure would be equally likely. As can be seen from Table 3, the null hypothesis was rejected: Shifts from secure to insecure and from insecure to secure were not equally likely, $\chi^2_M(1, N = 65) = 20.17, p < .001$. Movement from the insecure to

Table 3
Pre- and Postintervention Secure Versus Insecure Groups

Pretreatment classification	Posttreatment classification				Pretreatment total
	Secure		Insecure		
	<i>n</i>	%	<i>n</i>	%	
Secure	12	92.3	1	7.7	13
Insecure	23	44.2	29	55.8	52
Posttreatment total	35		30		65

Note. Percentages provided reflect the percentage of children classified in each attachment group at Time 1 (listed in rows) who were then classified in each attachment group (listed in the columns) at Time 2.

the secure group was more likely than movement from the secure to insecure group: Whereas 44% of the preintervention insecure children shifted to secure, only 8% of the preintervention secure children changed to insecure. In other words, based on the McNemar test, there was a significant decrease in insecurity after the intervention.

Discussion

The COS protocol is an attachment theory-driven protocol designed to be used for either prevention or intervention that is individualized for a particular caregiver-child dyad on the basis of the child's attachment classification and the caregiver's behavior and working models. Within the limitations of a longitudinal study lacking a control group, the results suggest that the COS protocol may have a significant positive impact on the attachment-caregiving patterns of high-risk toddlers, preschoolers, and their primary caregivers. The postintervention distribution of attachment classifications is remarkably similar to those found in the meta-analysis of attachment distributions in nonclinical, low-income samples by van IJzendoorn, Schuengel, and Bakermans-Kranenburg (1999).

In developing and implementing this protocol, we had expected that children classified in the two disorganized groups would tend to shift toward one of the organized groups, and we found that approximately 70% of them did so. This becomes especially meaningful when one considers that, consistent with attachment theory (e.g., Bowlby, 1969/1982, 1973, 1980), rates of stability for these disorganized classifications in nonclinical, low-income populations tend to be $\geq 70\%$ (e.g., Moss et al., 2005; see van IJzendoorn et al., 1999), compared with 30% stability of disorganization following the COS intervention. Even in the absence of a control group, this difference suggests that the COS intervention may be targeting an important mechanism for change. It is unlikely that this shift from disorganized to organized attachment is an artifact of the attachment assessments, as might be the case if a large proportion of the sample was coded with different coding systems at pre- and posttest and the system used at posttest was less likely to produce a disorganized classification. In this sample, all but nine children were assessed with the same attachment system at both time points, and only one of these nine was in the group that shifted from disorganized to organized.

Moreover, nearly two thirds of these children who shifted from one of the disorganized groups moved to the secure group rather

Table 2
Pre- and Postintervention Organized Versus Disorganized Groups

Pretreatment classification	Posttreatment classification				Pretreatment total
	Organized		Disorganized		
	<i>n</i>	%	<i>n</i>	%	
Organized	22	84.6	4	15.4	26
Disorganized	27	69.2	12	30.8	39
Posttreatment total	49		16		65

Note. Percentages provided reflect the percentage of children classified in each attachment group at Time 1 (listed in rows) who were then classified in each attachment group (listed in the columns) at Time 2.

than to one of the organized yet insecure groups (i.e., the avoidant and resistant groups). We suspect that this is attributable to the caregivers' new capacity to recognize and reflect on key defensive strategies that had previously hindered their ability to respond to specific needs essential for security in their children. Our assumption is that once caregivers are better able to manage their own defensive strategies in interaction with their children, a secure attachment-caregiving pattern is the least complex and most comfortable of the five major patterns represented in the literature.

Stability of Classifications and the Issue of "Do No Harm"

Of the 13 children classified secure before the intervention, only 1 changed to insecure. It is noteworthy that the parent of this child experienced a drug-use relapse toward the end of the 20-week intervention and that this child's classification changed to disorganized-controlling. This 92% rate of stability for the secure classification is important for at least two reasons. First, this rate of stability appears to be higher than that found in longitudinal, nonintervention studies of attachment (e.g., Moss et al., 2005; Weinfield, Whaley, & Egeland, 2004). If replicated, this would underscore the usefulness of the COS intervention as an early preventive intervention for enhancing the stability of secure attachments. Second, from a health care perspective, one critical question is, Does this intervention "do no harm"? Especially given the potential and reported danger (e.g., O'Connor & Zeanah, 2003) of some forms of what have been labeled "attachment therapies" (e.g., the "rage reduction" and "holding" therapies), it is incumbent on us to demonstrate that the COS protocol does no harm. Because we recruited dyads containing securely attached as well as insecurely attached children, we have been able to demonstrate that the COS intervention does no harm for securely attached children.

From a public health perspective, this issue of assessing the potential risks of a parent-child intervention is as critical as demonstrating benefits but is too often not examined. This is an especially timely issue given the number of community-based therapists who treat preschool and young school-age children with problematic attachments. Although there are a number of attachment research-based interventions for infants and young toddlers (see Berlin et al., 2005; Lieberman & Zeanah, 1999), these community therapists have available almost no relatively standardized protocols for preschool and school-age children with problematic attachments other than the rage reduction, holding, and other at least mildly coercive therapies (e.g., Cline, 1992; Levy, 2000; Thomas, 1997). These nonevidence-based therapies are currently under intense scrutiny because of their potential for causing either physical injury, death, or psychological injury that stems from their underlying framework of making negative inferences regarding the needs and motivations that lead to the child's problematic "symptoms" (O'Connor & Zeanah, 2003). The COS protocol is one of the few promising interventions available to community therapists that can make an evidence-based claim of low risk for negative outcome (however, see also Cohen, Lojkasek, Muir, Muir, & Parker, 2002; Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2005; and McDonough, 2004, for examples of evidence-based interventions that are designed to support security in children).

Limitations and Future Directions

The study's greatest limitation is the lack of an experimental control or comparison group with randomized assignment. Replication of this study with a randomized controlled design is essential to verify that the results obtained here reflect the effects of the intervention. In addition, there is need for a larger sample size to examine more closely the differential effects of the intervention across the full range of attachment classifications. Furthermore, the addition of a greater number of secure children would allow additional exploration of the issue of "do no harm." Also, the addition of a 1-year follow-up assessment would permit examination of potential long-term effects. We have collected these follow-up data and coding should be completed shortly. Finally, because it is important to demonstrate that others can implement the protocol and obtain effective outcomes, several studies are currently underway in which we have trained clinicians to serve as group leaders.

It is also important to note that the caregivers who participated in this study were selected for their willingness to participate in the intervention on the basis of the regularity of their participation in Head Start and Early Head Start as well as their interest in participating in the program. This strategy of recruiting participants has implications for the generalizability of the intervention. Further research will be needed to examine how to reach caregivers who may not be highly motivated to participate in such a program for any of a variety of reasons (e.g., life stressors, caregiver personality, low IQ, and even such difficulties as lack of reliable transportation).

An additional direction for further work is related to the "effectiveness" of the protocol and its dissemination in a form that is practical for community-based therapists. In the form described in this article, the COS intervention requires enough investment in space, video equipment, and preparation time to constitute a challenge for some therapists, especially those in private practice. We are currently working on two variations of the protocol. One is a parent-education version that will use archived videotapes of parent-child interaction rather than "individualized" videos of the participating dyads. In addition, this version will not include the actual psychotherapy phase, focusing instead on the earlier educational and supervised practice components of the protocol. A second variation is one in which the intervention is delivered by a therapist to one parent (or couple) at a time. This version, although lacking some of the advantages of a group model, has more flexibility in terms of timing and individualizing the protocol to fit the needs and characteristics of each client or family.

Conclusion

Increasingly, preschool and early school-age children are being referred for intervention for attachment-related problems, and their caregivers are being referred to increase or improve their parenting skills. Although there are several science-based attachment interventions for infant-caregiver dyads, the COS is one of the few such protocols with preliminary evidence suggesting that it is effective in reducing disorganization and increasing security for children in the age range between toddlerhood and the early school years. Given the fact that insecure attachment and disorganized attachment can be a risk factor for future psychopathology in the

child if present in conjunction with additional risk factors, the reductions in disorganized and insecure attachment have important implications for the health of families and children.

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Received January 17, 2006

Revision received July 21, 2006

Accepted July 25, 2006 ■

Call for Papers: Special Section on Suicide and Self-Harm Behaviors

The *Journal of Consulting and Clinical Psychology* is requesting submissions of empirical papers that focus on suicide and self-harm behaviors, including non-suicidal self-injury. In particular, submissions are requested that may address one of the following topics; (1) beyond the identification of broad biopsychosocial risk factors, what are possible specific mechanisms that promote self-harm behavior, and might be addressed in prevention/intervention efforts? (2) how might cross-disciplinary theoretical perspectives (e.g., biological, interpersonal) be integrated to understand or treat self-harm behavior? (3) what are some innovative methodological paradigms for investigating self-harm behaviors? (4) randomized clinical trial data on preventions/ interventions designed to reduce self-harm behavior. The papers must present original empirical findings. The goal of this special section is to have a set of papers that represent the lifespan.

The deadline for submissions of manuscripts is February 1, 2007. Final editorial decisions will be made by late 2007, with an anticipated publication date of early 2008. All submissions should be entered through the main submission portal for the journal (www.apa.org/journals/ccp.html). Authors should indicate in their accompanying cover letter that the paper is to be considered for the special section on “suicide and self-harm.” All submitted papers must be in APA format and conform to the all the guidelines for submission for JCCP (see www.apa.org/journals/ccp).

Questions or inquiries regarding the special section should be directed to the section editor, Mitch Prinstein (mitch.prinstein@unc.edu).