Child Development, July/August 2003, Volume 74, Number 4, Pages 1064–1068

Child Care Research: A Clinical Perspective

Stanley I. Greenspan

Two new studies on day care suggest that young children demonstrate increased aggressive behavior in relationship to time spent in day care and increases in cortisol levels in relationship to full-time, group-oriented, out-of-home care. These observations can be more fully understood in a clinical context that looks at individual differences in children, families, and child care environments. Factors likely to increase risk include sensory processing and modulation challenges; family stress; and lack of sensitive, nurturing interactions associated with less high-quality child care. Because 85% to 90% of current day care is not considered to be of high quality, individual families that can provide high-quality care need to explore carefully their options to see if it is possible to provide direct nurturing care for their infants and young children for at least half of the day.

There is already a great deal of debate on the meaning of important new studies for individual children and families. One study (National Institute of Child Health and Human Development [NICHD] Early Child Care Research Network, this issue), focusing on time spent in child care, suggests that problem behaviors, including aggressive and defiant behaviors, as well as child–adult conflicts are associated with increased time during infancy and early childhood in nonmaternal care, especially center-based day care. The other study (Watamura, Donzella, Alwin, & Gunnar, this issue) on cortisol levels suggests that during infancy and early childhood, rises in saliva cortisol levels during the day are more likely in children in full-day, group-oriented day care than at-home care. Rising cortisol levels during the day are often a response to stress and may be associated with increased risk for anxiety, fearfulness, depression, and lowered immune system functioning.

The two studies describe group data. The perspective of the clinician, of course, is the individual child who is partly defined by his or her set of individual differences. A clinical perspective takes the field beyond the day care debate and focuses attention on what infants and young children need for healthy emotional and intellectual growth in all settings, as well as what conditions may contribute to stressful and challenging child care environments. It also helps identify certain subgroups that are likely to be at higher risk for increased problem behaviors and signs of stress.

Clinically, we found that there are several individual differences that can help us make inferences about specific children and families. We have formulated these clinically relevant individual differences in the developmental, individual-difference, relationship-based model (Greenspan, 1999; Greenspan & Lourie, 1981; Greenspan & Porges, 1984). From this model, we found that infants and young children who are either overreactive or underreactive to sensations such as touch, sound, or movement are especially vulnerable in settings that do not tailor care to the child. For example, we found that babies who are very sensitive to sound will more easily be overwhelmed in a noisy group-oriented environment. Children with auditory processing and language challenges, visual–spatial thinking challenges, or motor planning and sequencing challenges are also likely to have a harder time in a challenging setting. For example, infants who have low muscle tone and are underreactive to sensation can easily become self-absorbed. They require much more one-on-one care with lots of engaging and wooing to learn how to relate to others. A group setting is more challenging because it is more difficult to provide one-on-one wooing in such a setting (Greenspan & Wieder, 1998, 1999). The problem-behavior study by NICHD Early Child Care Research Network (this issue) did not find that temperament variables contributed to problem behaviors. The physically based differences in our individual-difference model, however, go significantly beyond what we usually consider when conceptualizing temperament, which only focuses on a few of these individual difference parameters (Greenspan, 1992).

Children whose family circumstances are less than optimal in terms of family conflict, stress, or not

Stanley I. Greenspan, Department of Psychiatry, Behavioral Sciences, and Pediatrics, George Washington University Medical School.

Correspondence concerning this article should be addressed to Stanley I. Greenspan, 7201 Glenbrook Road, Bethesda, MD 20814. Electronic mail may be sent to jantunney21@comcast.net.

 0009-3920/2003/7404-0011

enough nurturing time with primary caregivers are also more likely to respond to challenges maladaptively. Likewise, the NICHD Early Child Care Research Network (this issue) found that a variety of individual differences in family variables, such as maternal sensitivity, depression, education, and income, contributed to problem behaviors. However, as is well known, differences in day care settings must be considered also. The larger the group, the less trained the caregivers, the more chaotic the center, the less modulated and soothing the interactions between staff and infants, toddlers, or preschoolers, the more likely one would tend to see problem behaviors or other signs of stress.

Individual differences in the degree to which children successfully negotiate their functional emotional developmental capacities are also important (Greenspan & Lourie, 1981; Greenspan, 1997). These capacities enable them to regulate their mood and behavior, including aggression, rather than respond to challenges with global actions (e.g., impulsivity, withdrawal). During the first four functional emotional developmental stages, the child is learning how to solve problems and regulate attention, behavior, and mood through the exchange of affects and other gestures (i.e., co-regulated affect signaling with reciprocal smiles, frowns, vocalizations, movements, and the like). This requires a great deal of sensitive one-on-one nurturing interaction with empathetic, responsive, regulating caregivers. For example, a child with lots of opportunities for long chains of back-and-forth affective signaling will signal his annoyance with an expression on his face. He may even begin raising an arm, as though to bang or hit. A sensitive caregiver, however, responds even before there is a clear discharge of aggression with an empathetic look, a warm regulating vocal tone, and, perhaps, some accompanying words, such as "Oh, my baby is getting angry!" The content of the words are relatively unimportant in comparison to the vocal tone and the reciprocal gestures or affects of the caregiver. If they help the baby feel understood and lead to helping him meet his need (e.g., reach for the toy or his rattle or be fed), he learns how to regulate his behavior, impulses, and moods through coregulated emotional signaling. Long chains of back-and-forth regulating signaling such as this tend to lead to adaptive coping strategies, such as using signaling and, later, words, rather than impulsive actions. On the other hand, when coregulated interactive opportunities are not present, caregivers ignore the baby's communicative gestures, or there is harsh, punitive caregiver responses, a child tends to use more extreme emotional outbursts and related aggressive actions (Greenspan & Shanker, 2003).

As children progress to higher levels in their functional emotional developmental capacities and in their ability to use symbols and language, these coregulated, affective exchanges continue and provide the quick or intuitive road to sizing up a situation and adapting constructively. Now, children can also learn from one another through verbal exchanges. During the preverbal and early verbal stages, however, when affective interchanges and other gestures are the primary tools of learning, long chains of coregulated interaction are the determining factors of how a child adapts to challenging experiences. They are the foundation for coping strategies that contribute to how well a child can later use words or ideas, rather than actions, to deal with challenges.

Looking at individual differences enables us to consider the much-debated meaning of the finding in the problem-behavior study that problem behaviors were not in the clinical range, though they were in the at-risk range for a small number of children (NICHD Early Child Care Research Network, this issue). It would be premature either to dismiss the findings regarding problem behaviors because they are not extreme enough or to assume they will necessarily escalate into the clinical range or generalize beyond school and family settings. The individual difference parameters discussed previously suggest that for certain subgroups the problem behaviors are more likely to escalate and generalize. At the same time, for some children, problem behaviors are more likely to be transient, related to temporary stress or expected developmental variations. At a minimum, however, this study raises the question that for many children, being in a large-group environment all day long over long periods may be challenging.

The clinical impression that for infants and preschoolers overall, spending the entire day in a group-oriented setting over long intervals may be at least somewhat stressful is reinforced by the other finding reported in Watamura et al. (this issue)—that children in all-day, group day care settings show rises in levels of saliva cortisol during the day, as compared with home-reared children, who show the typically expected fall in cortisol levels during the day. Further reinforcing this conclusion is the finding that on days the children are home, their cortisol levels tend to fall, like the home-reared children. Children with sensory modulation challenges, sensory processing challenges, poor home

environments, or more stressful group day care settings would likely show higher rises in stress hormones during the day. Children who are sensory overreactive tend to be especially physiologically labile and would likely find an all-day group setting very difficult. Watamura et al. found that fearful children (who clinically we find are sensory overreactive) had steeper rises in cortisol levels during the day.

A tentative conclusion of Watamura et al. (this issue) is that it is being in a peer group all day that is likely what is stressful for infants, toddlers, and young preschoolers. Our clinical observations support this conclusion. We have been able to identify a series of steps infants, toddlers, and preschoolers negotiate in learning to interact in social groups. Clearly, however, too much too early can be challenging. For example, we have found that one-on-one cooperative and joyful play with a peer is possible toward the latter half of the second year (e.g., laughing together and hamming it up, going down slides, and so forth). Earlier in the second year of life curiosity about a peer (e.g., touching his or her hair) not infrequently leads to aggression. Between ages 2 and 3, shared pretending with one other child, and gradually one or two more children, can be readily observed. When children are in a large group (more than three children) during this time, however, they tend to regress to parallel play, chaotic actions, or impulsive or withdrawn behavior. Occasionally, children are able to organize small groups on their own but often require skilled staff to facilitate the process (Greenspan & Press, 1985).

Years ago, before infant day care and earlier preschool programs for toddlers were popular, children tended to play with one or a few peers, but did not interact in larger groups until ages 4 to 6, and then it was only for half a day or until mid afternoon. It is interesting that it is at ages 3.5 to 6 that children are developing the visual-spatial, motor planning, and cognitive capacities to comprehend multiple relationships at the same time (i.e., a group; Greenspan, 1979, 1989). Comprehending the workings of a larger social group and one's relative role in a typical class at school often does not occur until ages 6 to 9 (Greenspan, 1979, 1993). Therefore, an all-day experience in groups may be challenging for younger children.

Obviously, further research will answer many of the questions these studies raise, such as the factors in the day care environment that account for the findings in these studies. Likely factors include the size of the group; the lack of individualized, nurturing interactions; and the lack of opportunities for lots of tailored, individualized, long chains of co-regulated, nurturing, affective interactions that would help children modulate their behavior and feel secure and comforted. In other words, it may not be day care per se but the features associated with it that could conceivably be changed with more enlightened and better funded day care programs. Therapeutic day care and early education for at-risk infants and families have been shown to be helpful.

Future research should include a focus on individual differences, including subgroups. It should also include a population of adults who were reared in full-time day care during infancy and early childhood. The individual-difference parameters described can guide such research efforts. In addition, from a clinical perspective, one would need to be cautious, to say the least, in comparing effect sizes of different independent variables (as the NICHD study did) when each independent and dependent variable attempts to define and measure a complex behavioral-psychological construct with its own measurement scale.

Recommendations for Public Policy and Family Guidance

To consider the short- and long-term policy implications of these studies and offer guidance to individual families and children, we need to look at other studies and our clinical understanding of what children require at different ages. Most clinicians and investigators concur that babies require sensitive, nurturing care where their emotional, social, language, and cognitive signals are perceived, responded to, and mobilized as part of ongoing learning interactions. They also concur that caregivers need to be able to shift gears with the baby's changing developmental needs as well as moment-to-moment fluctuations in mood, arousal, and attention (Greenspan, 2001).

Centers that provide the clinically recommended very sensitive, nurturing, individually tailored child–caregiver interactions tend to provide what is viewed as higher quality care (Greenspan, 2001; Shonkoff et al., 2000). Several studies, including the federally funded NICHD studies, however, suggest that the vast majority (85%–90%) of out-of-home child care is not considered to be of high quality (Cost, Quality, and Child Care Outcomes Study Team, 1995; NICHD Early Child Care Research Network, 2000, this issue). Families also vary considerably on the range of care they can provide (Greenspan, 1982; Greenspan et al., 1987; Wieder, Jasnow, Greenspan, & Strauss, 1983).

The reality that only 10% to 15% of day care is of high quality and that subgroups of children are at special risk, when coupled with the findings of the NICHD Early Child Care Research Network (this issue) and Watamura et al. (this issue), suggests some tentative policy and family option principles. At a minimum, it appears that for infants, toddlers, and preschoolers, spending all day in group-oriented child care settings may be challenging. It may be especially challenging for certain subgroups of children. If parents can provide high-quality care themselves, therefore, it may be prudent to advise them to explore options where they provide at least half a day of care themselves and rely on out-of-home care for half a day or less. Where both parents wish to work full time, perhaps they might consider sharing in child care and work, protecting equality between men and women—for example, by each working two thirds of the time, leaving one third of the time for the direct care of their child (Greenspan, 2001).

Most important, we must immediately improve day care settings for those who require it. This should include improved in-service training; better caregiver–child ratios (e.g., two babies per caregiver); more appropriate wage scales; better communication, support, and education for parents; and a policy that enables the caregiver to remain with a group of babies through the preschool years. Many families must use full-time out-of-home care to secure the necessities of food, housing, and clothing. Although it would be ideal to improve it for all families, federal, state, community, and business subsidies may be able to be more realistically applied to a more limited number of families who require child care.

Beyond the Day Care Debate

One of the most important findings of the NICHD studies is that the quality of caregiver–child interactions, regardless of setting (e.g., home or day care), is associated with favorable development across many domains such as language and social. We have been able to describe these positive child–caregiver interactions in some detail (Brazelton & Greenspan, 2000; Greenspan, 1999). They include the provision of physical protection, safety, and security; soothing regulation; individualized wooing into patterns of relating and engaging; and interactive exchanges involving reciprocal affect signals, vocalizations, and other gestures to facilitate communication and initiative. In addition, they include engaging infants in long chains of coregulated, one-on-one, modulated, affective interactions to solve problems and regulate mood and behaviors; imaginative play; and long verbal exchanges with sensitive caregivers and peers. Furthermore, as children progress in the preschool years, they include opportunities for opinion-oriented, reality-based conversations, and learning about the world, as well as for guidance on social interactions, games, and rules.

To improve child care environments in all settings will require collaboration among government, business, parents, early childhood care providers, and educators. A new "ethic" needs to be created that makes children and families a meaningful priority. The future depends on how well we chart a course that leads to future generations of reflective, empathetic, caring adults. In an ever more challenging world, we can no longer ignore the world's most vital resource and future—its children.

References

Brazelton, T. B., & Greenspan, S. I. (2000). *The irreducible needs of children: What every child must have to grow, learn, and flourish*. Cambridge, MA: Perseus.

Cost, Quality, and Child Care Outcomes Study Team (1995). *Cost, quality and child outcomesin child care centers, public report*. Denver: University of Colorado, Center for Research in Economics and Social Policy.

Greenspan, S. I. (1979). *Intelligence and adaptation: An integration of psychoanalytic and Piagetian developmental psychology. Psychological issues* ((Monograph No. 47-48). New York: International Universities Press.

Greenspan, S. I. (1982, January-February). Infant developmental morbidity and multiple risk factor families: Clinical impressions and an approach to services. *Public Health Reports, 97*(1), 16–23.

Greenspan, S. I. (1989). *The development of the ego: Implications for personality theory, psychopathology, and the psychotherapeutic process*. New York: International Universities Press.

Greenspan, S. I. (1992). *Infancy and early childhood: The practice of clinical assessment and intervention with emotional and developmental challenges*. Madison, CT: International Universities Press.

Greenspan, S. I. (1993). *Playground politics: Understanding the emotional life of your school-age child*. Reading, MA: Addison-Wesley.

Greenspan, S. I. (1997). *The growth of the mind and the endangered origins of intelligence*. Reading, MA: Addison-Wesley Longman.

Greenspan, S. I. (1999). *Building healthy minds: The six experiences that create intelligence and emotional growth in babies and young children*. Cambridge, MA: Perseus.

Greenspan, S. I. (2001). *The four-thirds solution: Solving the child care crisis in America today*. Cambridge, MA: Perseus.

Greenspan, S. I., & Lourie, R. S. (1981). Developmental structuralist approach to the classification of adaptive and pathologic personality organizations: Infancy and early childhood. *American Journal of Psychiatry, 138*, 725–735.

Greenspan, S. I., & Porges, S. W. (1984). Psychopathology in infancy and early childhood: Clinical perspectives on the organization of sensory and affective-thematic experience. *Child Development, 55*, 49–70.

Greenspan, S. I., & Press, B. K. (1985). The toddler group: A setting for adaptive social/emotional development of disadvantaged 1- and 2-year-olds in a peer group. *Zero to Three, 5*, 6–8.

Greenspan, S. I., & Shanker, S. (2003). *The first idea: How symbols, language, and intelligence evolve, from primates through humans*. Reading, MA: Perseus.

Greenspan, S. I., & Wieder, S. (1998). *The child with special needs: Encouraging intellectual and emotional growth*. Reading MA: Perseus.

Greenspan, S. I., & Wieder, S. (1999). A functional developmental approach to autism spectrum disorders. *Journal of the Association for Persons with Severe Handicaps, 24*, 147–161.

Greenspan, S. I., Wieder, S., Lieberman, A., Nover, R., Lourie, R., & Robinson, M. (1987). *Infants in multirisk families: Case studies in preventive intervention. Clinical infant reports*. New York: International Universities Press.

National Institute of Child Health and Human Development Early Child Care Research Network (2000). Characteristics and quality of child care for toddlers and preschoolers. *Applied Developmental Science, 4*, 116–135.

National Institute of Child Health and Human Development Early Child Care Research Network (2003). Does amount of time spent in child care predict socioemotional adjustment during the transition to kindergarten? *Child Development, 74*, 976–1005.

Shonkoff, J. P., & Phillips, D. A. (Eds.). (2000). Board on Children, Youth, and Families, Commission on Behavior and Social Sciences and Education, Committee on Integrating the Science of Early Childhood Development, & National Research Council and Institute of Medicine. *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.

Watamura, S. E., Donzella, B., Alwin, J., & Gunnar, M. R. (2003). Morning-to-afternoon increases in cortisol concentrations for infants and toddlers at child care: Age differences and behavioral correlates. *Child Development, 74*, 1006–1020.

Wieder, S., Jasnow, M., Greenspan, S., & Strauss, M. (1983). Identifying the multi-risk family prenatally: Antecedent psychosocial factors and infant developmental trends. *Infant Mental Health Journal*, 165–201.