ENCYCLOPEDIA
on Early Childhood
Development

ATTACHMENT

Disorganization of Attachment Strategies in Infancy and Childhood

Kate Hennighausen, PhD, Karlen Lyons-Ruth, PhD

Harvard Medical School, USA

December 2019, 3e éd. rév.

Introduction

The attachment relationship between parent and child refers to those aspects of the relationship that serve to regulate the infant's stressful arousal or sense of felt security. The quality of regulation of fearful affect available in attachment relationships is fundamental to the developing child's freedom to turn attention away from issues of threat and security toward other developmental achievements, such as exploration, learning and play. Under normal conditions, an adequately functioning attachment relationship buffers the infant against extreme levels of fearful arousal. However, the attachment relationship may also malfunction. Based on accumulated research findings, disorganized and controlling forms of attachment behaviour are now thought to represent signs of malfunction of the attachment relational system. Both caregiver and infant contribute to the infant-caregiver negotiations that occur around distress and comfort, as well as to the potential defensive adaptations that may result from those negotiations.

Disorganized attachment behaviours in infancy

©2019-2026 ABILIO | ATTACHMENT

Disorganized attachment strategies, or contradictory and un-integrated behaviours toward the caregiver when comfort is needed, can first be identified at 12 months of age. For example, freezing, huddling on the floor and other depressed behaviours in the presence of the caregiver when under stress are part of the coding criteria for disorganized behaviours. Contradictory approach-avoidance behaviours toward the caregiver when under stress are also indicators of a disorganized strategy, as shown in Table 1. These various contradictory and un-integrated behaviours are thought to indicate the infant's inability to organize a coherent strategy for eliciting comfort from the caregiver and are differentially associated with altered regulation of stress hormones.[1,2] Disorganized attachment behaviours may occur in combination with other insecure behaviours that are part of an avoidant or ambivalent attachment strategy. Many disorganized behaviours, however, are displayed in combination with behaviours that are usually part of a secure strategy, such as protesting separation, seeking contact with the caregiver at reunion and ceasing distress after being picked up. Notably, infants who display disorganized versions of secure strategies constitute a slight majority (approx. 52%) of infants classified as disorganized.[3,4]

Controlling attachment patterns in childhood

By three to six years of age, the child has acquired more cognitive capability to represent and think about the caregiver's emotional states. Over this age range, the disorganized attachment behaviours of many infants are gradually replaced by controlling forms of attachment strategies.[4] Controlling attachment behaviours take two very different forms, termed controlling-punitive and controlling-caregiving. Controlling-punitive behaviour is characterized by the child's attempts to maintain the parent's attention and involvement through hostile, coercive or more subtly humiliating behaviours. Controlling-caregiving behaviour is characterized by the child's attempts to maintain the parent's attention and involvement by entertaining, organizing, directing or giving approval to the parent. Both disorganized attachment strategies in infancy and controlling attachment strategies in the preschool years are associated with preschool and school-aged aggression and psychopathology.[5] In addition, disorganized attachment in infancy remains predictive of elevated levels of dissociative symptoms and overall psychopathology in late adolescence.[6,7]

Parental behaviours related to disorganized/controlling attachment strategies

©2019-2026 ABILIO | ATTACHMENT

An increased incidence of infant disorganization is observed in the context of maltreatment or parental psychopathology, but not in the context of infant illness or physical disability.[8,9] A meta-analysis has also confirmed that parental lapses of reasoning or discourse style during loss or trauma-related portions of the Adult Attachment Interview (termed an Unresolved State of mind) are associated with infant disorganization, r=.31.[10] However, the mechanisms underlying this association remain to be established. Almost half of disorganized infants (47%)10 do not have parents with unresolved states of mind. Main and Hesse[11] have advanced the hypothesis that if the parent herself arouses the infant's fear, this will place the infant in an unresolvable paradox regarding whether to approach the parent for comfort. This is because the parent becomes both the source of the infant's fear and the haven of safety. Animal research also makes clear that withdrawing parental behaviours that fail to soothe the infant’s fearful arousal are associated with enduring hyper-arousal of the stress response system.[12,13] Therefore, Lyons-Ruth, Bronfman and Atwood suggest that both fearful affect generated by the parent and fearful affect generated from other sources in the context of parental emotional unavailability may contribute to infant disorganization.[14,15] A spectrum of disrupted parental interactions has been shown by meta-analysis to be associated with infant disorganization. These behaviours include parental withdrawal, negative-intrusive responses, role-confused responses, disoriented responses, frightened or frightening behaviours, and affective communication errors, including contradictory responses to infant signals and failure to respond to clear affective signals from the infant.[16] Further, these disrupted parental interactions are more predictive of later child and adult outcomes than infant disorganization per se.[7,17-21]

Intervening with disorganized/controlling families

Intervention programs designed to modify disorganized attachment strategies have generally focused on the infancy period. Treatment goals have usually included building a warm and responsive therapeutic relationship to provide a corrective attachment experience for the parent. Further goals include helping the parent understand the effects of prior relationships on current feelings and interactions; coaching the parent on sensitive, age-appropriate responses to the child's attachment signals; and connecting the family to additional resources. Recent randomized, controlled intervention trials provide strong experimental evidence that disorganized attachment processes are amenable to change. Among both depressed middle-income mothers and low-income maltreating mothers, thoughtful and sustained interventions (> 40 sessions) were associated with significant reductions in infant disorganized attachment

©2019-2026 ABILIO | ATTACHMENT

relative to randomized untreated controls.[22,23] In addition, change in level of disrupted caregiving has been shown to mediate those changes in infant attachment.[24] The positive potential of early interventions is buttressed by evidence outside the attachment field that interventions for stressed low-income parents are both cost-effective and show positive long-term effects on child antisocial behaviour into early adulthood.[25,26,27]

Future Directions

Disorganized attachment processes are early predictors of both internalizing and externalizing forms of psychopathology from the preschool period onward.[28] These attachment processes are distinct from child temperament and appear to reside in child-caregiver relational processes rather than in the child or parent alone.[5] Attachment disorganization is likely to constitute a broad relational risk factor for psychopathology that cuts across conventional diagnostic categories and interacts with individual biological vulnerability, contributing to a range of psychiatric symptoms. Variability in behavioural profiles within the disorganized group suggests that multiple etiological models may be needed. Differing biological vulnerabilities interacting with differing experiences of loss, abuse and/or chronically hostile or neglecting relationships may lead to quite different developmental trajectories and adult outcomes.[29] Observational attachment paradigms to assess disorganization through middle childhood and adolescence are now appearing and need additional validation.[30,31] Current frontiers include investigation of gene-environment interaction in the etiology of disorganized attachment,[32,33,34] differentiation of correlates and outcomes related to indiscriminate attachment behaviour compared to disorganized attachment behaviour,[35,36,37] and exploration of infant, child, and adult neurobiological correlates of early attachment disturbance.[38,39,40]

Implications for Policy and Services

Much more emphasis is needed on funding, assessment and provision of early services to families with infants worldwide before the expensive developmental trajectories associated with child psychopathology begin to unfold.[41] We now have an array of observational methods to evaluate the quality of the infant-parent attachment relationship by the age of 18 months, before the onset of more serious behaviour problems.[5] Service providers in contact with young families need more training in using and interpreting these early observational tools. Finally, econometric analyses now clearly indicate the effectiveness, in cost-savings and in preventing human suffering, of providing early services to families in infancy, before the long-term developmental

©2019-2026 ABILIO | ATTACHMENT

trajectories associated with child psychopathology consume increasing societal resources.[42]

Table 1

Indices of Infant Disorganization and Disorientation in the Presence of the Parent

1. Sequential display of contradictory behaviour patterns, such as strong attachment behaviour followed by avoidance or disorientation;
2. Simultaneous display of contradictory behaviour patterns, such as strong avoidance with strong contact-seeking, distress or anger;
3. Undirected, misdirected, incomplete and interrupted movements and expressions;
4. Stereotypes, asymmetrical movements, mistimed movements and anomalous postures;
5. Freezing, stilling or “slow-motion” movements and expressions;
6. Direct indices of apprehension regarding the parent;
7. Direct indices of disorganization or disorientation in the presence of the parent, such as disoriented wandering, confused or dazed expressions, or multiple, rapid changes of affect.

Note: See Main & Solomon[3] for complete descriptions.

References

1. Hertsgaard L, Gunnar M, Erickson MF, Nachmias M. Adrenocortical responses to the strange situation in infants with disorganized/disoriented attachment relationships. *Child Development* 1995;66(4):1100-1106.
2. Luijk, M P, Saridjan, N, Tharner, A, van IJzendoorn, M. H, Bakermans-Kranenburg, MJ, Jaddoe,VW, Hofman A, Verhulst FC, Tiemeier H. Attachment, depression, and cortisol: Deviant patterns in insecure-resistant and disorganized infants. *Developmental Psychobiology*, 2010;52(5):441-452.
3. Main M, Solomon J. Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In: Greenberg MT, Cicchetti D, Cummings EM, eds. *Attachment in the preschool years: Theory, research and intervention*. Chicago, Ill: University of Chicago Press; 1990:121-160.
4. NICHD Early Child Care Research Network. Child-care and family predictors of preschool attachment and stability from infancy. *Developmental Psychology* 2001;37(6):847-862.
5. Lyons-Ruth K, Jacobvitz D. Attachment disorganization from infancy to adulthood: Neurobiological correlates, parenting contexts, and pathways to disorder. In: Cassidy J, Shaver P, eds. *Handbook of Attachment: Theory, Research, and Clinical Applications*. 3nd Edition. New York: Guilford; 2016; 667-695.
6. Carlson EA. A prospective longitudinal study of attachment disorganization/ disorientation. *Child Development* 1998;69(4):1107-1128.

©2019-2026 ABILIO | ATTACHMENT

7. Ogawa JR, Sroufe LA, Weinfield NS, Carlson EA, Egeland B. Development and the fragmented self: Longitudinal study of dissociative symptomatology in a nonclinical sample. *Development and Psychopathology* 1997;9(4):855-879.

8. van IJzendoorn MH, Goldberg S, Kroonenberg PM, Frenkel OJ. The relative effects of maternal and child problems on the quality of attachment: A meta-analysis of attachment in clinical samples. *Child Development* 1992;63(4):840-858.

9. Cyr C, Euser EM, Bakermans-Kranenburg M, van IJzendoorn M. Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. *Development and Psychopathology* 2010;22(1):87-108.

10. van IJzendoorn MH. Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin* 1995;117(3):387-403.

11. Main M, Hesse E. Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behaviour the linking mechanism? In: Greenberg MT, Cicchetti D, Cummings EM, eds. *Attachment in the preschool years: Theory, research and intervention*. Chicago, Ill: University of Chicago Press; 1990:161-182.

12. Coplan JD, Andrews MW, Rosenblum LA, Owens MJ, Friedman S, Gorman JM, Nemeroff CB. Persistent elevations of cerebrospinal fluid concentrations of corticotropin-releasing factor in adult nonhuman primates exposed to early-life stressors: Implications for the pathophysiology of mood and anxiety disorders. *Proceedings of the National Academy of Sciences of the United States of America* 1996;93(4):1619-1623.

13. Francis D, Diorio J, Liu D, Meaney MJ. Nongenomic transmission across generations of maternal behaviour and stress responses in the rat. *Science* 1999;286(5442):1155-1158.

14. Lyons-Ruth K, Bronfman E, Parsons E. Atypical attachment in infancy and early childhood among children at developmental risk. IV. Maternal frightened, frightening, or atypical behaviour and disorganized infant attachment patterns. *Monographs of the Society for Research in Child Development* 1999;64(3):67-96.

15. Lyons-Ruth K, Bronfman E, Atwood G. A relational diathesis model of hostile-helpless states of mind: Expressions in mother-infant interaction. In: Solomon J, George C, eds. *Attachment disorganization*. New York, NY: Guilford Press; 1999:33-70.

16. Madigan S, Bakermans-Kranenburg MJ, van IJzendoorn MH, Moran G, Pederson DR, Benoit D. Unresolved states of mind, anomalous parental behavior, and disorganized attachment: A review and meta-analysis of a transmission gap. *Attachment and Human Development* 2006;8(2):89-111.

17. Lyons-Ruth K, Bureau J-F, Holmes B, Easterbrooks M, Books NH. Borderline symptoms and suicidality/self-injury in late adolescence: Prospectively observed relationship correlates in infancy and childhood. *Psychiatry Research* 2013;206(2-3):273-281.

18. Shi Z, Bureau J-F, Easterbrooks MA, Zhao X, Lyons-Ruth K. Childhood maltreatment and prospectively observed quality of early care as predictors of antisocial personality disorder. *Infant Mental Health Journal* 2012; 33(1):55-69.

19. Sroufe L A, Egeland B, Carlson, E, Collins W. *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York: Guilford; 2005.

20. Dutra L, Bureau J, Holmes B, Lyubchik A, Lyons-Ruth K. Quality of early care and childhood trauma: A prospective study of developmental pathways to dissociation. *Journal of Nervous and Mental Disease* 2009;197(6):383-390.

21. National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network. Infant-mother attachment classification: Risk and protection in relation to changing maternal caregiving quality. *Developmental Psychology* 2006;42(1):38-58.

22. Toth SL, Rogosch FA, Manly JT, Cicchetti D. The efficacy of toddler-parent psychotherapy to reorganize attachment in the young offspring of mothers with major depressive disorder: A randomized preventive trial. *Journal of Consulting and Clinical Psychology* 2006;74(6):1006-1016.

©2019-2026 ABILIO | ATTACHMENT

23. Cicchetti D, Rogosch FA, Toth SL. Fostering secure attachment in infants in maltreating families through preventive interventions. *Development and Psychopathology* 2006;18(3):623-649.

24. Tereno S, Madigan S, Lyons-Ruth K, Plamondon A, Atkinson L, Guedeney N, Greacen T, Dugravier R, Saias T, Guedeney A. Assessing a change mechanism in a randomized home-visiting trial: Reducing disrupted maternal communication decreases infant disorganization. *Development and Psychopathology* 2017;29(2):637-649.

25. Olds D, Henderson CJr, Kitzman H, Eckenrode J, Cole R, Tatelbaum R. The promise of home visitation: Results of two randomized trials. *Journal of Community Psychology* 1998;26(1):5-21.

26. Schweinhart LJ, Barnes H, Weikart D. *Significant benefits: The High/Scope Perry Preschool study through age 27*. Ypsilanti, MI: High/Scope Press; 1993.

27. Lally JR, Mangione PL, Honig AS. The Syracuse University Family Development Research Program: Long-range impact on an early intervention with low-income children and their families. In: Powell DR, ed. *Parent education as early childhood intervention: Emerging directions in theory, research and practic*e. Westport, CT: Ablex Publishing; 1988:79-104. *Annual advances in applied developmental psychology*; vol. 3.

28. Madigan S, Brumariu L, Villani V, Atkinson L, Lyons-Ruth K. Representational and questionnaire measures of attachment after early childhood: A meta-analysis of relations to child internalizing and externalizing problems. *Psychological Bulletin* 2016;142(4):367-399.

29. Lyons-Ruth K, Bureau J-F, Easterbrooks A, Obsuth I, Hennighausen K, Vuillez-Coady L. Parsing the construct of maternal insensitivity: Distinct longitudinal pathways associated with early maternal withdrawal. *Attachment & Human Development: Festschrift Issue for MDS Ainsworth* 2013;15(5-6):562-582.

30. Brumariu L, Giuseppone K, Kerns K, Van de Walle M, Bureau J-F, Bosmans G, Lyons-Ruth K. Middle childhood attachment strategies: Validation of an observational measure. Attachment and Human Development 2018;20(5);491-513.

31. Obsuth I, Hennighausen K, Brumariu L, Lyons-Ruth K. Disorganized behavior in adolescent-parent interactions: Relations to attachment state of mind, partner abuse, and psychopathology. *Child Development* 2014;85(1):370-387.

32. Gervai J, Novak A, Lakatos K, Toth I, Danis I, Ronai, Z, Nemoda Z, Sasvari-Szekely M, Bureau JF, Bronfman E, Lyons-Ruth K. Infant genotype may moderate sensitivity to maternal affective communications: Attachment disorganization, quality of care, and the DRD4 polymorphism. *Social Neuroscience* 2007;2(3-4):307-319.

33. Luijk M, Roisman G,Haltigan J, Tiemeier H, Booth-Laforce C, van IJzendoorn,M, Bakermans-Kranenburg M. Dopaminergic, serotonergic, and oxytonergic candidate genes associated with infant attachment security and disorganization? In search of main and interaction effects. *Journal of Child Psychology & Psychiatry* 2011;52(12):1295-1307.

34. Roisman GI, Fraley RC. A behavior-genetic study of parenting quality, infant attachment security, and their covariation in a nationally representative sample. *Developmental Psychology* 2008;44(3):831-839.

35. Gleason MM, Fox NA, Drury SS, Smyke AT, Nelson CA, Zeanah CH. Indiscriminate behaviors in previously institutionalized young children. *Pediatrics* 2014;133(3);657-665.

36. Lyons-Ruth K, Bureau JF, Riley CD, Atlas-Corbett AF. Socially indiscriminate attachment behavior in the Strange Situation: Convergent and discriminant validity in relation to caregiving risk, later behavior problems, and attachment insecurity. *Development and Psychopathology* 2009;21(2):355-372.

37. Lyons-Ruth K, Riley C, Patrick MPH, Hobson RP. Disinhibited attachment behavior among infants of mothers with borderline personality disorder, depression, and no diagnosis. *Personality Disorders* 2019; 10(2): 163-172.

38. Lyons-Ruth K , Pechtel P , Yoon SA, Anderson CM , Teicher MH. Disorganized attachment in infancy predicts greater amygdala volume in adulthood. *Behavioral Brain Research* 2016;308:83-93.

39. Bernier A, Dégeilh F, Leblanc É, Daneault V, Bailey H N, Beauchamp M H. Mother–Infant interaction and child brain morphology: A multidimensional approach to maternal sensitivity. *Infancy* 2019;24(2):120-138.

©2019-2026 ABILIO | ATTACHMENT

40. Rifkin-Graboi A, Tan, HM, Goh KY, Sim, LW, Sanmugam S, Chong YS,, Tan KH, Shek L, Gluckman P, Chen, Y, Fortier M, Meaney M, Qiu A. Sensitivity to sensitivity: Does offspring neuroanatomy moderate the relation between caregiving and levels of disorganized behavior? *Proceedings of the National Academy of Sciences*. In press.

41. Lyons-Ruth K, Todd-Manly J, Von Klitzing K, Tamminen T, Emde R, Fitzgerald H, Campbell P, Keren M, Berg A, Foley M, Watanabe H. The worldwide burden of infant mental and emotional disorder: Report of the task force of the World Association for Infant Mental Health. *Infant Mental Health Journal* 2017;38(6):695-705.

42. Karoly LA, Greenwood PW, Everingham SS, Hoube J, Kilburn R, Rydell P, Sanders M, Chiesa J. *Investing in our children: What we know and don't know about the costs and benefits of early childhood interventions*. Santa Monica, CA: RAND Corporation; 1998.

©2019-2026 ABILIO | ATTACHMENT