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Synthesis

How important is it?

Attachment is the emotional bond of infant to parent or caregiver. It is described as a pattern of emotional and behavioural interaction that develops over time, especially in contexts where infants express a need for attention, comfort, support or security. Parental sensitivity, defined as the ability to perceive, interpret and react promptly and appropriately to their infant's signals and needs, influences the quality of the attachment relationship. According to Bowlby's attachment theory, the relationship developed with primary caregivers is the most influential in children's lives. A secure relationship not only fosters positive developmental outcomes over time, but also influences the quality of future relationships with peers and partners.

Secure parent-child relationships help children to regulate their emotion in stressful situations and explore their environment with confidence. Secure attachment also fosters children's cognitive, emotional and language development. Furthermore, children who are securely attached are predisposed to display positive social behaviours (e.g., empathy and cooperative behaviours) helping them to develop future positive relationships. On the other hand, insecure and disorganized attachment put children at increasing risk of problem behaviours and psychopathologies. Examples include preschool and school-aged aggression, depression, and socioemotional maladjustment.

What do we know?

Attachment is thought to develop in four phases:

1. Infants respond indiscriminately to people for contact and affection;
2. Infants' behaviours (gaze, cries, coos, smiles, babbling) are displayed to specific people;
3. Infants show active attachment behaviour with primary caregivers and become anxious when separated from them; and
4. Infants enter a goal-corrected partnership where they negotiate with caregivers.

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Parent-child attachment relationships are typically assessed with the Strange Situation Procedure, in which infants' reactions to being reunited with one of their primary caregivers following a brief separation are examined. From these interactions, patterns of attachment relationships are determined. Infants who actively seek proximity with their parents on reunion and communicate their distress are securely attached. In contrast, infants who avoid their parents or remain inconsolable on reunion are usually insecurely attached. Some infants display a disorganized attachment style, characterized by contradictory behaviours toward parents (e.g., strong avoidance with strong contact-seeking, distress or anger).

Sensitive parenting in the early years plays a key role in the emergence of secure attachments. For example, parental support, acceptance of the child and sensitive behaviours during joint play foster a secure attachment. In contrast, domestic violence, frightening, insensitive or neglectful caregiving or maltreatment are important predictors in the development of attachment insecurity and disorganization. Changes in parental acceptance or disruption of the family can alter attachment pathways in either direction, temporarily or permanently.

Studies suggest that day care may have indirect effects on the attachment relationship, contingent on many factors, such as the social context (familial, cultural, societal) in which day care is experienced. Indeed, its influence on attachment security has been found to vary across countries (e.g., Australia, Israel, United States). Its impact is also a function of the quality, type, timing and quantity of care provided. Although high-quality day care may buffer the negative effect of parental insensitivity in some cases, the security of child-parent attachment is primarily guided by the sensitivity of maternal care.

The critical dependence of a child's adaptive development on the supportive environment provided by the parent takes on particular importance when considering the millions of families worldwide that have been forcibly displaced from their homes. These conditions and unusual levels of stress leave parents with few psychological or physical resources to provide developing children with the environment they need.

What can be done?

Considering the life-long consequences of child-parent relationship quality during the early years, prevention and intervention programs designed to promote secure attachment are of crucial importance. That said, there are important factors to take into consideration when

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implementing those programs, including their content, duration, behavioural focus and the populations targeted (at-risk vs. low-risk populations).

The most effective interventions for enhancing attachment security appear to be those targeting parental sensitivity. Goals usually include building a warm relationship and coaching the parent on age-appropriate responses to the child's attachment signals. Several programs use video feedback to help parents become aware of their interactional style and the needs of their children. For best results, interventions should be of short duration and implemented when the child is six months or older. However, for families with multiple problems, longer-term and broader support in coping with daily hassles may be needed to enable them to focus on sensitivity. As well, an exclusive focus on parental sensitivity may be neither sufficient nor effective in preventing disorganized attachment. As such, sustained and intensive home-based interventions are recommended to reduce disorganized attachment, and should emphasize decreasing or eliminating atypical caregiver behaviours (e.g., frightening behaviours).

Training in attachment theory and observation is also key for practitioners, and may lead to more successful assessments and interventions with maltreating parents. For example, the CARE, Montreal's Community of practice on Attachment and Relational intervention, offers professionals monthly group supervision to promote and ensure continuous training.

Finally, it is important to ensure that families at developmental risk, including single mothers, are provided with the social and financial resources necessary to provide their children with a supportive environment during infancy. Services provided during this developmental period would help to prevent the long-term developmental trajectories associated with child psychopathology.

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The Impact of Attachment to Mother and Father and Sensitive Support of Exploration at an Early Age on Children's Psychosocial Development through Young Adulthood

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Introduction

Bowlby's and Ainsworth's approach to personality development relied on ethology[1,2] and cross-cultural research,[3,4] preserving the central questions of traditional psychoanalysis[2] and drawing on the concept of mental representation as suggested by cognitive psychology. The ethological approach implies: a) a careful description and classification of infant and child behaviour;[5] b) reference to a posited environment of evolutionary adaptedness for humans, as evidenced by young humans' intense responsiveness to being left alone in a strange environment with strange people; and c) analyzing the function of emotions and behaviours in a social context.[6] Ethologically guided observations of sensitivity in remote non-western environments attest to the general applicability of this research approach.[7] Attachment serves to ensure protection and care, and secure attachment serves to relieve distress, restore physiological homeostasis and encourage exploration. The impact of attachment in terms of biology and neurobiology has also been documented in recent studies.[8,9] For example, it is through attachment relationships, that young children first learn to link emotions to external events in a linguistically meaningful manner. Further, non-pathological attachment relationships are the basis for becoming emotionally, socially and cognitively acculturated.[10]

In the early years, attachment relationships to parents and consistent caregivers are the predominant and most influential relationships in children's lives. These relationships set the stage for infants' physiological functioning, their emotional and cognitive interpretations of social- and non-social experiences, their language development, and their acquisition of meaning about themselves and others in complex social situations. Later, the attachment relationships mediate children's acceptance and acquisition of their culture.[11] Joint attention appears to be the

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central process;[12] it emerges at around nine months, at the height of stranger anxiety. In this way, nature ensures that infants learn first about their family's culture in the mother tongue. Attachment relationships that were vital for infant survival during human evolution[13] continue to influence thoughts, feelings and motives and therefore close relationships throughout life. Early experiences of care, and the attachment relationship with the caregiver, have a long-lasting impact on the child's reactivity to stress.[9]

Within the framework of modern evolutionary biology, attachment theory focuses on the "gene-selfish" interest of children in receiving as much of their parents' physical as well as psychological resources as possible.[6,13] In terms of Trivers'[14] parent-offspring conflict paradigm, attachment theory focuses on the offspring's side of the conflict, and on the parent's willingness or unwillingness to invest in any particular individual offspring. However, parental lifespan planning may help to explain possible differences in parental investment in care and differential parental sensitivity towards different children.[15] This may also explain the moderate concordance of patterns of attachment even in monozygotic twins.[16]

Subject

Attachment theory posits a causal relationship between individuals' experience with their parents or attachment figures and their capacity to form affectional bonds later on. If a child receives tender loving care when in need, and support for autonomy during exploration from mother as well as father, such experiences are assumed to a) give the child a sense of worth, a belief in the helpfulness of others and enable the child to explore the environment with confidence; b) be an optimal precondition for mutually supportive, enduring adult partnerships; and c) provide a model for later parenthood.[10,17] Confident, competent exploration is equivalent to our concept of "secure" exploration.[18] Combining the concept of secure attachment with secure exploration yields the concept of "psychological security" that we advocate.[18]

Problems

Originally, attachment research provided only one method to assess quality of attachment in infancy, using a separation-reunion paradigm (the strange situation). However, research results indicated a low validity of the infant-father strange situation assessment for predicting subsequent psychosocial development.[19] Rather, father-child interactive quality during play or exploration, and sensitive challenges to the young child's competencies seem to be better

predictors of child development.[20,21,22] Another challenge to attachment research is not only a measurement issue but mainly a conceptual as well as an open research question: How do behavioural patterns of infant attachment become patterns of quality of verbal discourse about attachment representation later?[23]

Research Context

Two longitudinal studies of children's social and emotional development in not-at-risk middle-class two-parent families were started in the mid- and late 1970s: the Bielefeld project, or Project 1, which started with the birth of the infants, and the Regensburg project, or Project 2, which started when the infants were 11 months old.[11] The children's experiences in the domains of attachment and exploration were assessed in infancy, childhood and adolescence, with both mother and father using standardized or free observations. Semi-structured interviews about family matters were conducted with the parents on many occasions and later with the children. Representations of attachment were assessed at ages 10, 16 and 22, representations of friendship at 16, and representations of partnership at 20 or 22. For the analysis of early influences on the representation of close relationships, data on child attachment and exploratory strategies, maternal and paternal sensitivity and support were aggregated for the periods of infancy (birth to age three), childhood (five to 10) and adolescence (16 to 18).[11] In addition, we conducted various studies in other cultures,[24] adding to the long tradition of cross-cultural research on attachment.[25]

Key Research Questions

How does the capacity to make affectional bonds develop? How predictive are the qualities of infants' attachment to mother and father during the first two to three years and their experiences of sensitive support during exploration for adolescents' and young adults' partnership representations? What are the roots of young adults' representation of attachment relationships?

Research Results

Our longitudinal projects revealed several major findings:[11]

1. Security in attachment and partnership representation at the age of 22 was significantly predicted from security of attachment in adolescence and childhood. Precursors of the

ability to present a clear discourse about attachment issues were already observable at ages 6 and 10 years.[23,26]

2. Mothers' as well as fathers' sensitive supportiveness, acceptance of the child and appropriate challenging behaviours, each in its own right and taken together, were powerful predictors of internal working models of close relationships in young adulthood.
3. Mothers' and fathers' sensitivity during joint play with their children in various settings in the first six years of life contributed significantly to the child's later quality of partnership representation. Parental sensitivity during play was characterized by parental support, and behaviours that promote cooperation and independent problem solving.
4. In contrast to some other longitudinal studies of attachment development, patterns of attachment shown by the infants in the strange situation to the mother at 12 months or to the father at 18 months did not predict representation of attachment beyond childhood in either project. The single most influential variable in Project 1 was the fathers' sensitive challenging behaviour during play with their 24- month-old toddlers.[11]
5. Project 1 is an example of the complexity of developmental pathways beyond infancy. By the end of the first year, only 33% of infants had shown a secure pattern of attachment to the mother and only 41% to the father in the strange situation. Still, a secure pattern of attachment to the mother predicted more optimal development up to the age of 10. We argued that the high proportion of avoidance in this sample was due to German cultural demands for early self-reliance in the 1970s and did not necessarily indicate parental rejection as indicated by maternal sensitivity.[27]
6. In Project 1, an insecure pattern of attachment in infancy was predictive of less optimal subsequent emotional and social development only if the child also lacked the experience of sensitive, supportive mothering and fathering in the domain of exploration. Even more importantly, parental rejection during middle childhood, traumatic experiences like the loss of a close friend, parental separation and parental actual or pending loss were most likely associated with adolescents' insecure representation of attachment.[28]
7. By age 22, however, a number of subjects had reflected thoroughly on their attachment experience such that parental divorce was no longer a major but only a mediating variable. The most powerful predictor of attachment and partnership representation at age 22, was the child's representation of maternal and paternal support during middle childhood age and mothers' and/or fathers' rejection of the child, as indicated in a lengthy semi-

structured interview when the children were 10 years old.[29]

8. The socio-emotional development of the not-at-risk children in both projects was influenced throughout the years of immaturity by many factors that were often independent of each other. Infant attachment quality to mother and father were independent of each other, as was maternal and paternal play sensitivity towards the toddler. Parental rejection during middle childhood was not predicted by infant attachment security, nor was parental divorce or loss. Each factor could divert the child's developmental pathway towards a more adaptive or a more non-adaptive direction.[11,29]

Our own cross-cultural research on Japanese and Trobriand infants confirmed three of the four core hypotheses of attachment theory:[25] 1) Infant attachment to at least one caring adult is universal; 2) the secure pattern of attachment was also the norm in both groups; and 3) security of attachment is positively related to competence.[6,24] In our recent review, we summarize many studies that support the concept of psychological security indicating the combined influence of secure exploration and secure attachment. Psychological security was linked to cognitive competence, flexible gender-role behaviour, as well as resourceful transition and adaptions within the school system.[18]

Conclusion

Young children's experiences of sensitive, accepting, supportive mothers and fathers start a pathway of positive psychosocial development for the child. Such experiences in the domains of attachment as well as exploration are at the roots of secure models of close relationships and healthy self-reliance in the academic domain.[30] They are likely to be carried forward to other close relationships in childhood, adolescence and young adulthood. Changes in parental acceptance or disruption of the family can alter the pathway in either direction, temporarily or permanently.[10,11]

The child's subjective experiences can best be assessed by open-minded, reliable observations of quality of interactions in structured situations[3] and by semi-structured interviews that allow for a discovery of new categories. Analyses of the adaptive functioning of the attachment system must focus on adverse experiences, irritations and negative emotions. Analyses of secure exploration must focus on challenges to the child's competencies[31] and address co-construction of meaning together with familiar figures.[32] Appropriate emotional responses to real events and attempted appropriate solutions with the help of other trusted persons are reliable indicators of security of

exploration.

Implications for the Policy and Services Perspective

Throughout the early years, caregiver sensitivity implies an understanding and correct interpretation of and prompt and appropriate responses to the young child's non-verbal as well as verbal expressions. A prerequisite for sensitivity is pacing the interactions according to the child's rhythms, in both good and bad moods. Variations in the quality of maternal caregiving shape the neurobiological systems that regulate stress reactions.[9] Higher sensitivity was found in mothers and fathers who valued attachments based on their recollections of being accepted themselves and sensitively cared for as a child.[29] Likewise, in close relationships with non-parental caregivers or mentors in which the child feels safe and secure, the child will make ample use of joint attention to social and non-social objects and events. Learning is most effective if the child feels valued by the mediating person.[33]

Parents who have experienced difficult childhoods themselves or who have an infant with special needs benefit from help in three pivotal domains: 1) understanding child development in all domains; 2) learning to respond sensitively to their individual child;[34,35] 3) finding enjoyment and sufficient time for sensitive, supportive interactions with the child in attachment- and exploration-relevant situations. In subsequent years, support in more domains become important, such as finding invested, knowledgeable mentors and educators for the child and monitoring the child's friendship group. This is especially important when parents' own education or acculturation leave too many gaps. Secure attachment is a necessary but not sufficient prerequisite for becoming a cooperative, valuable and accepted member of one's group and society. Secure exploration must complement secure attachments so that children can successfully meet the many challenges posed by their social relationships as well as by their cultural demands.

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Disorganization of Attachment Strategies in Infancy and Childhood

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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

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

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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

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

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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 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 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;

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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.

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Attachment at an Early Age (0-5) and its Impact on Children's Development

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Introduction

What is attachment? Children are considered to be attached if they tend to seek proximity to and contact with a specific caregiver in times of distress, illness and tiredness.[1] Attachment to a protective caregiver helps infants to regulate their negative emotions in times of stress and distress and to explore the environment, even if it contains somewhat frightening stimuli. Attachment, a major developmental milestone in the child's life, remains an important issue throughout the lifespan. In adulthood, attachment representations shape the way adults feel about the strains and stresses of intimate relationships, in particular parent-child relationships, and the way in which the self is perceived.

Development of attachment

Attachment is suggested to develop in four phases.[1] In the first phase — indiscriminately orienting and signalling to people — the baby seems "tuned" to certain wave-lengths of signals from the environment. These signals are mostly of human origin (e.g. the sound of voices). During the second phase, probably first by smell and then by sight, the baby develops preference for one or more caregivers — the phase of orienting and signalling to one or several specific persons. Not until the infant is able to show active attachment behaviour, such as actively seeking proximity to and following the attachment figure, does the infant enters the third phase, the phase of attachment proper — staying near a specific person by means of signalling and movement. Children enter the fourth phase of the goal-corrected partnership when they can imagine the parent or caregiver's plans and perceptions and fit their own plans and activities according to these.

Explaining individual differences in attachment

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Ainsworth et al.[2] observed one-year-old infants with their mothers in a standardized stressful separation procedure, the Strange Situation Procedure (SSP). The reactions of the infants to their reunion with the caregiver after a brief separation were used to assess how much trust the children had in the accessibility of their attachment figure.

The procedure consists of eight episodes, of which the last seven ideally take three minutes but they have to be curtailed when the infant is crying for more than 15 to 20 seconds. Infants are confronted with three mildly stressful components: an unfamiliar environment, interaction with a stranger, and two short separations from the caregiver.

Three patterns of attachment can be distinguished on the basis of infants' reactions to the reunion with the parent or other caregiver. Infants who focus their attention on the parent and actively seek proximity on reunion, communicate their feelings of stress and distress openly and then readily redirect their attention on the environment and continue exploration are classified as secure (B). Infants who do not seem to be distressed and ignore or avoid focusing their attention too explicitly on the caregiver after being reunited (although physiological research shows their heightened attention and arousal)[3] are classified as insecure-avoidant (A). Infants who exclusively focus their attention on the caregiver and combine strong contact maintenance with contact resistance, or remain inconsolable without being able to return their attention to the environment, are classified as insecure-ambivalent (C). Besides the classic tripartite ABC classifications, Main and Solomon[4] proposed a fourth classification, disorganized attachment (D), which is assigned in combination with one of the three organized cateories and is suggested to indicate fearful attention to the caregiver who may be experienced as frightening, frightened or extremely neglecting.

An overview of all American studies with non-clinical samples (21 samples with a total of 1,584 infants, conducted between 1977 and 1990) shows that about 67% of the infants were classified as secure, 21% as insecure-avoidant and 12% as insecure-ambivalent.[5] A central issue in attachment theory and research is what causes some infants to develop an insecure attachment relationship while other infants feel secure.

Research Context

The basic model of explaining individual differences in attachment relationships assumes that sensitive or insensitive parenting determines infant attachment (in-)security. Ainsworth[2] and

colleagues originally defined parental sensitivity as the ability to perceive and interpret children's attachment signals correctly and respond to these signals promptly and adequately. Lack of responsiveness or inconsistent sensitivity has indeed been found to be associated with insecurity in children, and consistent sensitive responsiveness with secure bonds.[6]

However, some proponents of the behavioural genetic approach have declared most correlational findings on child development to be seriously flawed because they are based on traditional research designs focusing on between-family comparisons, which confound genetic similarities between parents and children with supposedly shared environmental influences.[7] Harris,[8] for example, claims that there is an urgent need to radically rethink and de-emphasize the role of parents in child development. Plomin9 more recently argued that parents matter but do not make a difference in shaping their children's developmental trajectories –except at conception. Despite the prevalence of this current of thought, attachment theory continues to emphasize the important role of parental sensitivity, for some good reasons. Twin studies and molecular-genetic studies on attachment security in infancy did not show a substantial genetic component, and randomized intervention studies documented the causal –if not exclusive- role of sensitivity.

Key Research Questions

Crucial research questions explore the heritability of attachment, the causal role of sensitive parenting in the development of infant attachment security, and intergenerational transmission of attachment suggesting a transmission gap. The question of heritability has been addressed in twin studies comparing attachments of mono- and dizygotic twins within the same family. Furthermore, the causal question has been examined in experimental intervention studies designed to enhance parental sensitivity in order to improve the infant attachment relationship. Lastly, studies on attachment representations in parents and their influence on infant attachments as mediated by parental sensitivity address the transmission question.

Recent Research Results

Concerning the heritability question, at least four twin studies on child-mother attachment security using behavioural genetic modelling have been published. Three of the four studies documented a minor role for genetic influences on differences in attachment security and a rather substantial role for shared environment.[10,11,12] The fourth study, the Louisville Twin Study, [13] investigated the quality of attachment in twin pairs with an adapted separation-reunion

procedure originally designed to assess temperament. The large role shared environmental factors play in attachment (about 50% in the Bokhorst et al. study)[12] is remarkable. Individual differences in infant attachment relationships are mainly caused by nurture rather than nature, although the bias in each human being to become attached is universal and inborn. Later in the development of attachment genetic differences might become more important, as Fearon and his team showed in a large sample of adolescent twins.[14] In search for differences in structural DNA associated with infant attachment we were, however, not able to trace their influence on the level of specific dopaminergic, serotonergic or oxytonergic genes, or on the level of genome-wide (SNP) analyses.[15]

Is sensitive parenting the core ingredient of the shared environment? In 24 randomized intervention studies (n = 1,280) conducted before 2003, both parental sensitivity and children's attachment security were assessed as outcome measures. In general, attachment insecurity appeared more difficult to change than maternal insensitivity. When interventions were more effective in enhancing parental sensitivity, they were also more effective in enhancing attachment security, which experimentally supports the notion of a causal role of sensitivity in shaping attachment.[16] Randomized control trials of the past 15 years seem to support this conclusion but a systematic meta-analytic evaluation still is outstanding.

For more than 25 years the hypothesis of intergenerational transmission of attachment has been investigated, with a special emphasis on the so-called transmission gap. The model of intergenerational transmission can be summarized with the proposition that security of the attachment representation of parents influences the level of their sensitivity to the infant, which in its turn shapes the security of the infant's attachment to the parent. Although substantial evidence has been found to support this mediational model it still leaves room for complementary mechanisms besides sensitivity because a persistent transmission gap remains visible.[17] Closing this gap has been a major challenge, but with the combination of numerous datasets relevant for this issue in an Individual Participant Data (IPD) meta-analytic approach part of the puzzling transmission gap might be bridged.[18]

Conclusions

Attachment, the affective bond of infant to parent, plays a pivotal role in the regulation of stress in times of distress, anxiety or illness. Human beings are born with the innate bias to become attached to a protective caregiver. But infants develop different kinds of attachment

relationships: some infants become securely attached to their parent, and others find themselves in an insecure attachment relationship. These individual differences are not genetically determined but are rooted in interactions with the social environment during the first few years of life. Sensitive or insensitive parenting plays a key role in the emergence of secure or insecure attachments, as has been documented in twin studies and experimental intervention studies. In the case of attachment theory, the nurture assumption8 is indeed warranted. Numerous findings confirm the core hypothesis that sensitive parenting causes infant attachment security, although other causes should not be ruled out, and the puzzling transmission gap may require complementary mechanisms besides parental sensitivity, e.g. the influence of the wider social context.

Implications for Social Policy

The most important policy and mental-health implication is that parenting does matter and makes a difference for infants' socio-emotional development. Parents are therefore entitled to receive social support from policy-makers and mental-health workers to do the best job they can in raising their vulnerable children. Sensitive parenting is hard work and does not come naturally to many parents, who have to find their way even if they had quite some positive childhood experiences of their own. It takes a village to raise a child,[19] so parents need to rely on good-quality non-parental care in a larger caregiving network to combine childrearing with other obligations. Furthermore, many parents may profit from rather brief preventive interventions that help them become more sensitive to their infants' attachment signals. From randomized experiments, we may conclude that effective interventions for enhancing sensitive parenting and infant attachment security are now becoming available that use a moderate number of sessions and a clear-cut interactive focus, starting some six months after birth. From an applied attachment perspective, young parents should be given access to preventive support programs that incorporate these evidence-based insights.

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Attachment in Early Childhood: Comments on van IJzendoorn, and Grossmann and Grossmann

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Introduction

Attachment theory and research has established for itself a central place in the study of human social and affective development, building on the foundational concepts of Bowlby[1] and on Ainsworth's[2] translation of these into a framework for empirical study. Researchers worldwide have used attachment as a vehicle to increase our understanding of the life-long consequences of the human infant's first relationship and of the factors in the mother's own childhood that are central to the shaping of that relationship.

Karin and Klaus Grossmann and Marinus van IJzendoorn are outstanding representatives of the researchers who have built on the legacy of Bowlby and Ainsworth. They have taken different but complementary approaches to their tasks. van IJzendoorn provides a straightforward, authoritative overview of attachment theory and a description of patterns of attachment relationships.[3] His description of research findings focuses on the question of whether variation in attachment is a function of early social experience with the caregiver or a product of genetic factors. He cites recent behavioural genetic analyses of attachment in twins that convincingly support the experiential side in this debate. This evidence is all the more notable because it contrasts sharply with the results of parallel studies of the origins of many behavioural and personality traits and attitudes for which evidence of substantial genetic influence has been found.[4]

The Grossmanns, on the other hand, take a more personal approach to their task, beginning with an account that stresses attachment's role, both in evolutionary and developmental time, in providing the infant with a social apprenticeship with the caregiver – an opportunity to acquire the social and emotional skills required to adapt to the society and culture of his or her birth. Their review of research involves extracts from two extensive longitudinal studies carried out in Germany by the authors and their colleagues. These results stress both life-long continuity and

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the potential for change, for better or worse, as a result of substantial fluctuations in the social environment.

Research and Conclusions

A critical element in both contributions is the rightful emphasis they place on the role played by the caregiver in determining the quality of the attachment relationship and thus in shaping the future social and emotional development of the child. In addition to the results of twin studies, van IJzendoorn also cites experimental evidence for the critical place of caregiving in development, citing the results of intervention studies that have been successful in improving the quality of the attachment relationship through manipulations that enhance the mother's sensitivity and responsiveness.[3]

Neither author comments at length on research on the developmental consequences of variation in early attachment relationships. An extensive body of research over the past two decades and more has established a clear link between secure patterns of attachment in infancy and early childhood and later social adaptation.[5] Secure attachment has been associated with better developmental outcomes than non-secure patterns in areas that include self-reliance, self-efficacy, empathy and social competence in toddlerhood, school-age and adolescence. Infants with non-secure attachments have been shown to be more prone to later problems in adaptation that include conduct disorder, aggression, depression and anti-social behaviour. It is important to note, however, that much of the research relating attachment to later developmental outcomes was performed prior to the use of the disorganized category,[6] a pattern of attachment that has been linked compellingly to more extreme maladaptive developmental outcomes. An unknown number of disorganized relationships, therefore, were included in these analyses within the secure and non-secure attachment groups. Additional research is needed to clarify which, if any, of the associations previously attributed to non-secure patterns are in fact a function of disorganization.

Implications for Social Policy and Services

The Grossmanns' emphasis on both the ability of early attachment quality to predict later social and emotional adaptation and on discontinuities in this process reflects a fundamental aspect of the role of attachment in development as originally conceptualized by Bowlby. That is, attachment influences development in a probabilistic rather than a simple deterministic fashion.

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This notion is especially important for those hoping to use an understanding of attachment to develop services or implement social policy. Briefly, rather than directly determining a particular adaptive or maladaptive outcome, early attachment experiences are thought to predispose the infant to act and react in a manner that serves to shape subsequent social experiences, thus launching the child on one developmental pathway rather than the other. The actual developmental outcome, however, remains the product of continuing experience, even though these experiences are, in part, made more or less probable by the quality of the early attachment relationship. The trajectory can be changed by subsequent social experience, including deliberate intervention.

Bowlby captured the most important implications of attachment theory and research for social policy and services in a report that was written well over half a century ago:

> *"Just as children are absolutely dependent on their parents for sustenance, so in all but the most primitive communities, are parents, especially their mothers, dependent on a greater society for economic provision. If a community values its children it must cherish their parents."*
>
> John Bowlby, 1951, p.84, WHO Report
> Cited by Inge Bretherton (1992)[7]

Bowlby's comment to some extent reflects the language and culture of the day but remains urgently accurate. Research on attachment over the past four decades has confirmed his central hypothesis: the sensitivity and responsiveness of the caregiver are instrumental in shaping the human infant's first relationship. This relationship, in turn, has been shown to be a powerful predictor of later important social outcomes. Our efforts to ensure that this outcome is adaptive rather than maladaptive for both the individual and society must, therefore, focus on our support of the infant's caregiver, most often the mother. In today's society, this translates most urgently, at a policy level, into ensuring that families at developmental risk, including single mothers, are provided with the social and financial resources necessary to provide their children with a supportive social environment – the prerequisite of a healthy attachment relationship. As suggested by van IJzendoorn, in many cases this will mean the provision of quality daycare for these same families. For service-providers, attachment theory and research call for a focus on

early social interaction and on the primary mediator of such interaction, the mother. Patterns of attachment behaviour and mental representations become less flexible and less open to change with developmental time. Investment through social policy and service delivery in the earliest years is thus a more efficient and feasible approach than reactive intervention delayed until the negative consequences of inadequate early experiences become apparent.

An appreciation of this critical dependence of a child's adaptive development on the supportive environment provided by the parent is nowhere more important today than in the lives of the 79.5 million persons worldwide who were living forcibly displaced from their homes in 2019 – including millions of families with young children.[8] These families live under unusual levels of stress from a variety of sources, including poverty, poor nutrition, disease, lack of health care, inadequate housing, threats of physical violence and a generally uncertain future over which they have little control. These conditions leave parents with few psychological or physical resources to provide the developing child with the environment they need and, for many, now stretch across generations. The arguments of van IJzendoorn and the Grossmanns make it clear that the consequences of forced human displacement for the development of individual, for their communities, and for the world will be profound and endure across generations.

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Attachment and its Impact on Child Development: Comments on van IJzendoorn, Grossmann and Grossmann, and Hennighausen and Lyons-Ruth

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Introduction

More than 50 years ago, a British child psychiatrist named John Bowlby was commissioned by the World Health Organization to write a monograph about the mental- health needs of young children. Bowlby's conclusion was that "what is believed to be essential for mental health is that an infant and young child should experience a warm, intimate and continuous relationship with his mother (or mother substitute – or permanent mother substitute – one person who steadily mothers him) in which both find satisfaction and enjoyment."[1] Grossmann and Grossmann, van IJzendoorn, and Hennighausen and Lyons-Ruth all review the current status of more than 35 years of research that has affirmed, refined and extended Bowlby's central thesis. In this commentary, we review the authors' interpretations of research, implications for policy, and highlight additional areas of emphasis.

Research and Conclusions

Several issues and conclusions are reviewed in the sections on attachment and its impact on child development:

(1) Individual differences in the organization of the young child's attachment behaviour expressed towards the caregiver have proven to be reasonably robust predictors of the child's subsequent psychosocial adaptation. An important question that has been the focus of empirical attention and debate concerns the degree to which individual differences in attachment are attributes of the child or are instead attributes of the child's relationship with a specific caregiver. van IJzendoorn concludes that it is "nurture" rather than "nature" that accounts for differences in attachment security. His hypothesis is well substantiated by the research he cites

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and is further supported by repeated findings that a child may have different attachment classifications with different caregivers.[2]

(2) If attachment patterns reflect relationship characteristics rather than traits in the child, one would expect that characteristics of dyadic interaction would be associated with patterns of attachment. The research cited by van IJzendoorn provides support for a causal role of parental sensitivity in the development of attachment security, though much less research has addressed the interactive patterns that precede avoidant and resistant attachment. Research reviewed by Hennighausen and Lyons-Ruth has also demonstrated that certain parental behaviours, such as withdrawal, negative-intrusive responses, role-confused responses, disoriented responses, frightened or frightening behaviours and affective communication errors, which include contradictory responses to infant signals, are likely to be more evident in the context of certain types of parental psychopathology, and have been documented to be associated with disorganized attachment.[3,4]

(3) A central tenet of attachment theory has been that early experiences between young children and their caregivers provide a model for intimate relationships in later life. Although this model is believed to be modifiable by subsequent experiences, the theory has posited a conservative tendency to resist change. These propositions suggest that in a stable caregiving environment, one would expect to find stable patterns of attachment, but in environments characterized by significant changes, one would expect less stability. On balance, these assertions are supported by research, although results from four longitudinal studies of attachment from infancy to adulthood do not support a linear relationship,[5-8] as these studies do not uniformly demonstrate stability of attachment classifications from infancy to adulthood. They do, however, provide support for a relationship between life events and changes in attachment classifications. In the Grossmanns' work, negative life events and stresses were also found to compromise attachment security. Individuals whose attachment classifications changed from secure in infancy to insecure in adulthood were more likely to have experienced negative life events (such as divorce), and children who demonstrated insecure attachment in infancy were more likely to remain insecure if they experienced negative life events. Studies conducted and reviewed by Grossmann and Grossmann (this volume) have helped illuminate some of the complexities of developmental pathways.

(4) Hennighausen and Lyons-Ruth rightly emphasize the importance of disorganized attachment as a component of the study of childhood psychopathology. Although the secure vs. insecure

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attachment distinction has some predictive validity, disorganized attachment has far better documented links with specific types of psychopathology than do other types of insecurity.[4,9] Still, much less is understood about the mechanisms through which disorganized attachment affects the expression of psychopathology in the child, and whether it is a specific contributor or a more general marker for psychopathology in general. Hennighausen and Lyons-Ruth's emphasis that interventions with families most at risk for having children with disorganized attachments have shown promise when they are home-based, intensive and long-lasting is a particularly important point.

Additional Issues

What is missing from these contributions is a consideration of attachment in more extreme populations, such as maltreated or severely deprived young children. In contrast to the developmental perspective that considers the quality of a young child's attachment to a caregiver as a risk or protective factor for the development of psychopathology, the clinical tradition considers that attachments may be so disturbed as to constitute an already established disorder. Reactive attachment disorder (RAD) describes a constellation of aberrant attachment behaviours and other social behavioural anomalies that are believed to result from "pathogenic care."[10] Two clinical patterns have been described:

(a) An emotionally withdrawn/inhibited pattern, in which the child exhibits limited or absent initiation or response to social interactions with caregivers, and a variety of aberrant social behaviours, such as inhibited, hyper-vigilant or highly ambivalent reactions; and (b) an indiscriminately social/disinhibited pattern, in which the child exhibits lack of expectable selectivity in seeking comfort, support and nurturance, with lack of social reticence with unfamiliar adults and a willingness to "go off" with strangers.

Although the systematic study of attachment disorders is quite recent, these disorders have been described for more than half a century. From a handful of recent studies, it seems clear that signs of attachment disorders are rare to non-existent in low-risk samples,[11-13] increased in higher-risk samples,[14,15] and readily identifiable in maltreated[16] and institutionalized samples.[12,13] Interestingly, the emotionally withdrawn/inhibited type of RAD is readily apparent in young children living in institutions and in young children when they are first placed in foster care for maltreatment, but it is rarely evident in samples of children adopted out of institutions.[11,17] In contrast, the indiscriminately social/disinhibited type of RAD is discernable in maltreated,[16]

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institutionalized[12,13,18] and post-institutionalized children[11,13,17,19-20]

Clearly, there is a need to understand how clinical and developmental perspectives on attachment interrelate. Some initial suggestions that secure, insecure, disorganized and disordered attachments could be arrayed on a spectrum of healthy to unhealthy adaptation[21] or that disorganized attachment itself should be considered an attachment disorder have not been supported by research to date. Instead, the picture that is beginning to emerge is that the clinical and developmental perspectives on disturbed attachments offer different ways of understanding disturbances of attachment.

Implications for the Policy and Services

The propensity for human infants to form attachments to their caregivers and for caregivers to be drawn to care for human infants appears to be hard-wired. Thus, disturbances of attachment become evident when various factors within the parent, within the child or within the larger caregiving contexts interfere with a species-typical capacity to form attachments.

All three contributors describe implications for policy. van IJzendoorn emphasizes that policies should be developed to encourage parental sensitivity in the infancy period. Grossmann and Grossmann further emphasize the importance of the parent-child attachment relationship in older children and adolescents, and by implication, interventions with families should not only focus on the early childhood period but rather be aimed at providing consistent support and assistance throughout the child's development. Finally, Hennighausen and Lyons-Ruth rightly emphasize that early intervention for infants and toddlers with disorganized attachment will likely reduce the need for more expensive interventions once psychopathology has emerged.

No doubt all of the contributors would agree that we already know enough to identify children at risk for disturbances of attachment and its associated psychopathology. Nonetheless, preventive interventions, perhaps even before the child is born, have enormous potential to alter the behavioural and developmental trajectories that may befall children born into multi-risk families. The contributors further assert that policy and practice should focus on the early identification of parent-child relationship difficulties in hopes of providing services that may ameliorate the risk for the development of later psychopathology.

Policies should identify the means by which families can access consistent parenting and psychological support throughout the lifetime of their child. Primary health-care providers and

child-care professionals are two groups that have contact with most families of children and adolescents. How these professionals may best support the needs of parents and which interventions are most beneficial to enhance parental sensitivity and infant attachment remains a matter of debate. A recent meta-analysis of early childhood interventions asserted that brief interventions (<5 sessions) focusing on increasing maternal sensitivity and enhancing infant attachment security were more effective than long-term intervention.[23] In contrast, Hennighausen and Lyons-Ruth cited evidence that disorganized attachment responds best to home-based, intensive and long-term interventions. In other words, from a health-promotion perspective (promoting secure attachments), shorter and more focused interventions may be preferable, but from a risk- reduction perspective (reducing disorganized attachment), longer and more intensive interventions may be necessary. Challenges that remain are demonstrating valid approaches to identifying different levels of risk in families and cost-effective interventions to optimize later developmental and behavioural outcomes for young children.

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Attachment Security and Disorganization in Maltreating Families and in Institutionalized Care

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Introduction

Children are born with the tendency to establish attachment relationships with caregivers, who provide safety and comfort in times of stress. But not all children are securely attached. Extremely insensitive and maltreating caregiving behaviours as well as instability of care may be among the most important precursors of attachment insecurity and disorganization. Insecure and disorganized attachment, in turn, are predictive of less social competence and more internalizing and externalizing behaviour problems.[1] What do we know about the association between child maltreatment and attachment, what are the mechanisms linking maltreatment with attachment insecurity and disorganization, and what type of interventions might be most effective?

Subject

Child maltreatment is a widespread phenomenon affecting the lives of many children. According to the World Health Organization, child maltreatment refers to any interaction or lack of interaction reasonably within the control of a parent or person in a position of caregiving responsibility, that does (potential) harm to the child's health or physical, mental, spiritual, moral, or social development in the context of the society in which the child grows up.[2] Worldwide prevalence rates of different types of maltreatment ranged from 0.3% based on studies with reports from professionals to 36.3% based on self-report studies.[3]

Attachment disorganization has been suggested to be caused by frightening and extremely insensitive or neglectful caregiving.[4] Studies with non-maltreatment samples have demonstrated that anomalous parenting, involving (often only brief episodes of) parental dissociative behaviour, rough handling, or withdrawn behaviour, is related to disorganized attachment in the

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child.[5] Parental maltreatment is probably one of the most frightening behaviours a child may be exposed to. Maltreating parents do not regulate or buffer their child's distress, but they activate their child's fear and attachment systems at the same time. The resulting experience of fright without solution is characteristic of maltreated children. According to Hesse and Main,[4] disorganized children are caught in an unsolvable paradox: their attachment figure is a potential source of comfort and at the same time a source of unpredictable fright. Moreover, maltreatment leads to increased risks of insecurity: abusive and neglectful parenting are at odds with providing safety and comfort.

Besides the "family-context" types of maltreatment, we should also think of structural neglect from which world-wide millions of children in institutional care settings suffer. Structural neglect is inherent to institutional care settings that fall short of continuous, stable and sensitive caregiving for individual children due to caregiver shifts, high staff-turnover rates, large groups, strict regimes, and sometimes physical and social chaos.[6,7]

Problems

Not all children from maltreating families have disorganized attachments, and there are other pathways to attachment disorganization. Family risk factors such as poverty, substance abuse, low education, and single parenthood may add to the risk of attachment insecurity and disorganization. It is reasonable to assume that parents who are confronted with overwhelming personal or socioeconomic problems and daily hassles may be unable to respond sensitively to their child, or may withdraw from interacting with the child, leading to chronic hyper-arousal of the child's attachment system. This may impede children's capacity to develop an organized insecure attachment strategy, even without maltreatment in the stricter sense of the definition.

Secondly, marital discord and domestic violence may lead to insecurity and disorganization as the child is witnessing an attachment figure who is unable to protect herself, which is highly frightening to a child.

A third pathway to disorganization could be associated with the chaotic environment of institutional care. Even today, millions of children around the world are brought up in institutional care settings rather than in families. Although institutions vary greatly in terms of their structure and the quality of care provided, what they have in common is instability of caregivers due to staff turnover, the need to provide 24/7 care, and often high child-to-caregiver

ratios. For the child this implies that there is no stable caregiver to turn to for consolation in times of stress. Even when sanitary conditions are adequate and nutritional needs are met, the children's attachment needs are neglected.

Research context

Collecting data on maltreatment samples is difficult. Maltreated children are often victim to multiple forms of abuse,[3] hampering a distinction among the effects of different types of maltreatment. Conjoint work with the child welfare system may raise legal and ethical issues involving sharing information with clinical workers or being asked to provide a statement in court.

It is equally difficult to get access to child institutions, and to observe child attachment in those settings. Who is the 'favorite' or most stable caregiver of a child? Who should be observed as an attachment figure in interaction with the child? What if the child has not developed an attachment relationship with any of the caregivers?

Key research questions

Three issues are central: first, does child maltreatment lead to more insecure and disorganized attachments? Second, is institutionalized care also related to insecure and disorganized attachment? Third, are there effective (preventive) interventions for child maltreatment?

Recent research results

A meta-analysis combining all pertinent studies shows that maltreated children are much more likely to have insecure and disorganized attachments, even compared to children growing up in high-risk families (e.g., with single mothers).[8] Having said that, the cumulation of risk factors is associated with greater risks. Children exposed to five risks factors such as poverty, adolescent mother, low education, single parenthood, minority, substance abuse, are as likely as maltreated children to be disorganized. They may be subjected to some type of parental neglect that is unavoidable in chaotic living and child rearing circumstances.

With regard to domestic violence, Zeanah et al.[9] documented a dose-response relation between mothers' exposure to partner violence and infant disorganization. Witnessing parental violence may elicit fear in a young child about the caregiver's well-being and her ability to protect herself and the child against violence.

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In an institution only few children develop a secure attachment relationship with a caregiver: combining all studies to date, 24% of the children in institutions are securely attached (compared to 62% in the normal population) and 57% are disorganized (compared to 15% in the normal population).[6] Along with huge delays in physical and cognitive development,[6] these numbers point to the urgent need to promote family-based alternatives to institutionalisation.[7]

An important question, then, is whether children who are placed in a foster or adoptive family after institutionalisation can develop secure attachments with their new parents. Observational studies show that children adopted before 12 months of age were as often securely attached as their non-adopted peers, whereas children adopted after their first birthday were less often securely attached than non-adopted children (but they were more secure than institutionalized children).[10] Adoptees were comparable to foster children. However, adopted children showed more disorganized attachments compared to their non-adopted peers. Again, they were comparable to foster children.

One might argue that children who leave the institution for placement in an adoptive or foster family are the brighter, more sociable children with a better prognosis than the children left behind in the institution. The Bucharest Early Intervention Project (BEIP)[11] is the only study with a randomized controlled design. Following a baseline assessment, half of the institutionalized children were randomly assigned to a foster care program. The other half remained in institutional care. The BEIP also includes a comparison group of typically developing, age-matched children from Romania. At age 4 years, the proportion of secure children in the foster-care group was 24% higher than among children who remained institutionalized, but lower than for the comparison group living with their biological families. Thus, in line with other developmental outcomes,[6] family care (with adoptive or foster parents) proves to be an effective intervention in the domain of attachment.

How effective are parenting interventions for maltreating families? An umbrella review of interventions to prevent or reduce child maltreatment showed modest intervention effectiveness, both for interventions targeting child abuse potential or families with self-reported maltreatment and for interventions delivered to families with officially reported child maltreatment.[2] An earlier meta-analysis indicated that programs with a focus on parent training were more effective than programs that solely provided support.[12]

Research gaps

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How do some institution-reared and maltreated children develop secure attachment, and what characterizes these children? Does attachment security constitute a protective factor in high-risk contexts? Does it interact with other protective factors such as the child's biological constitution or the caregivers' psychosocial resources? Little is known about the differential effects of the various types of abuse and neglect – co-morbidity may hamper a clear distinction of differential effects. Lastly, the effects of parenting support programs on attachment quality in maltreating samples needs more research.

Implications for parents, services and policy

From the devastating consequences of institutionalization it is clear that children's exposure to living in an institution should be avoided completely if possible, and adoptive or stable foster-family care should be supported instead. In a study of HIV-infected children, even compromised family care appeared to be more favorable for the formation of attachment relationships than good quality institutions.[13]

Family matters, and some families need support. Maltreatment prevalence data show a large impact of parental experience of maltreatment in his or her own childhood[2] and risk factors associated with a very low education and unemployment of parents.[2,12] A practical implication of this observation is the recommendation to pursue a socio-economic policy with a strong emphasis on education and employment. Policies enhancing education and employment rates are expected to effectively decrease child maltreatment rates. In addition, combining family-based interaction-focused interventions with large-scale socioeconomic experiments such as cash transfer trials may be a fruitful way to prevent or reduce child maltreatment.[2]

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Attachment-based intervention and Assessment in the context of Maltreatment: Comments on Bakermans-Kranenburg and van IJzendoorn

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Introduction

Bakermans-Kranenburg and van IJzendoorn's text on "Attachment security and disorganization in maltreating families and institutionalized care" clearly state the need for more research on the effects of parenting support programs for improving the lives of maltreated children.[1] Indeed, such research is of paramount importance if we are to ensure that the specific needs of these children and their primary caregivers are adequately addressed, as well as those of practitioners from Child Protective Services (CPS), who directly deliver the programs to families.

CPS is generally concerned with two critical tasks: 1) Parental Capacity Assessments (PCA) to orient child placement decisions and 2) Intervention services to protect the child, promote child development, and rehabilitate the parent. Intervention encompasses various types of services that may range, depending on the severity of cases and the court's decisions, from providing services directly in the families' homes to out-of-home childcare. In the former, family services seek to enhance parental capacities and reduce the recurrence of maltreatment. Whether children remain with their parents or are removed, the overarching goal of CPS is to preserve or reunify families, unless the child's safety under parental care is not possible.[2]

In the past years, many studies were conducted to examine the effects of support and treatment protocols for maltreating parents and their children; and results of attachment-based interventions have shown positive effects on parents and children's well-being.[3] However, less can be said of attachment-based PCA protocols, given the early stages of this research. Nevertheless, recent advances in the field of attachment underscore attachment theory's

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framework as valuable at both the assessment and intervention levels.[4] In this commentary, we briefly review the results of past attachment research in these two specific domains (PCA and intervention), outline important research questions for future studies, and underscore what we believe is one crucial key ingredient to the success of attachment-based practices in the context of child maltreatment.

Attachment-Based Intervention

A significant number of studies have tested long- and short-term attachment-based intervention protocols with maltreating parents and their children.[3] Thus far, all protocols show significant changes in parents' and children's functioning. For example, using the Attachment and Biobehavioral Catch-up (ABC) with maltreating parent-child dyads and relying on a randomized control trial (RCT) design, researchers found that children in the ABC intervention group expressed lower levels of negative affect during a challenging task. Also, a higher proportion of children were securely attached at post-test in comparison to children of the control group.[5,6] Testing the Attachment Video-feedback Intervention (AVI; RCT), our work with maltreating parent-child dyads showed increases in maternal sensitivity, child attachment security, and child mental and motor development, and decreases in child attachment disorganization and behavior problems for families of the AVI group.[7,8] Using the Video feedback Intervention to Promote Positive Parenting and Sensitive Discipline (VIPP-SD; RCT), mothers at very high risk of maltreatment with the highest parenting stress levels at intake showed greater decreases in harsh discipline than other parents.[9] As for the Video Interaction Guidance intervention (VIG; no-RCT), it was delivered to parents in a residential treatment center who were at high risk of having their child removed.[10] This small-scale study revealed that parental care and sensitivity increased for parents of the intervention group, but diminished for those of the control group.

All of these protocols have in common their focus on the parent-child relationship and the inclusion of both the parent and child during intervention sessions. As well, all protocols are strength-based, relying on the assumption that individualized positive comments to the parent (whether positive video- or in-the-moment feedback) enhances parental sensitivity and child functioning. However, thus far, there is still a lot to learn about the mechanisms through which treatment effects are observed and the conditions under which they are most successful. Furthermore, regarding intervention outcomes specific to the context of maltreatment, more studies should consider examining the risk of child placement and recurrence of maltreatment.

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Best conditions of treatment success. A small set of attachment-based studies recently suggested that specific parent and child characteristics or difficulties may impede treatment efficacy. In particular, maltreating parents are likely to suffer from psychopathology, have experienced maltreatment and trauma during their childhood, and show higher stress levels or lower social support.[11,12] Tarabulsy et al. found that mothers with the highest levels of psychiatric symptoms, in comparison to those with the lowest levels at intake, benefited more from the AVI.[13] Steele et al. found that the Group Attachment-Based Intervention (GABI; RCT), implemented with mothers at very high risk of maltreatment, was less effective in improving dyadic coordination for mothers with high levels of adverse childhood experiences (ACE) in comparison to mothers with low levels of ACE.[14] Similarly, we recently showed, for a sample of parents with substantiated reports of maltreatment, that those of the AVI group with more severe childhood trauma levels showed fewer improvements in parent-child interaction than AVI parents with less severe childhood trauma.[15]

In short, results suggest that attachment-based interventions are successful with maltreating parents; however, some protocol adjustments would be warranted for some parents, particularly those who have experienced more severe trauma. Do these parents need more intensive interventions? Would a focus on trauma be a valuable approach? More research is needed to identify other potential moderators of intervention effects and develop tailored intervention strategies for those families with specific needs.

Recurrence of Maltreatment and Child Placements as Treatment Outcomes. Though the rates of re-reports of maltreatment and child placement are important indicators of intervention success in the context of maltreatment, there are very few attachment-based studies examining treatment effects on these outcomes, and those that have yielded mixed results. For instance, Cyr et al. (RCT) did not show any changes in the rates of these two indicators immediately following the AVI and up to one year later.[16] Yet, in their study, Tarabulsy et al. (no-RCT) reported lower rates of child placements for children whose parents had been exposed to the AVI.[13] To better inform CPS and help protect children, there is a pressing need for the attachment research community to provide more precise information on the re-reports of maltreatment and child placement rates in the months/years following an attachment-based intervention. Further long-term attachment-based intervention research is needed in this area.

Attachment-Based Assessments of Parenting Capacities to Orient Placement Decisions

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When CPS substantiates maltreatment, caseworkers first ask whether parents can provide minimal standards of child care. The answer to this question is critical as children with unfit parents are to be placed in out-of-home care to ensure their safety. Hence, to answer this question, particularly in cases of children for whom the risks associated with placement may outweigh the risks of remaining in the care of their parents, caseworkers request a parenting capacity assessment (PCA). PCAs help document parents' competence to ensure children's physical and emotional safety, and parents' potential for enhanced parenting.[17,18] Then, relying on the results of PCAs, caseworkers can formulate recommendations that assist judges in their decision-making process about child placement. PCAs, which reveal parental strengths and difficulties, further help with the planning of intervention in cases of children remaining in their parents' care.

It has been argued that good quality PCAs should focus on the evaluation of several risk and protective factors associated with parenting and child placement. Such factors relate to the parent's cultural values, community, financial and psychological resources, as well as their history of maltreatment and the quality of their social support network.[19,20] Another important information to gather from PCAs is the parent's potential for enhanced parenting. To this end, adding a short attachment intervention to a PCA protocol would be much suited.

Two recent studies, the first by van der Asdonk and her colleagues[21] in the Netherlands and the second by our group in Canada (Cyr et al.),[16] have tested the value of a PCA protocol with a video-feedback parent-child training as an embedded intervention component to assess the potential for enhanced parenting. However, mixed results were shown. The RCT study of van der Asdonk et al. revealed that the quality of child placement decisions was not improved by implementing an attachment-based intervention (VIPP) component to a PCA.[21] Precisely, following their PCA-VIPP protocol, practitioners of the target group did not feel more confident about their child placement recommendations. Authors argued that the evaluators involved in their study, given that they were part of different clinics, could not rely on a standardized evaluation protocol. As a result, although all evaluators used the VIPP, they may not have assessed and weighted other risk and protective factors in a similar fashion. These family system factors are likely to influence the parents' capacity to care and change, and in turn, the evaluators' perception of the parent. In the Cyr et al.'s RCT study,[16] we looked at different outcomes. We found that conclusions drawn by AVI practitioners, as to whether the parent showed a minimal capacity to care for their child following the PCA-AVI protocol, were predictive

of child re-reports of maltreatment in the year following PCA, while those of the control group were not. We concluded that relying on short attachment-based interventions to assess parenting improvements – combined with a standardized evaluation of other parental risk and protective factors –, are promising tools to orient child placement decisions. Given the paucity of research in this area, much research is needed to confirm these results and better inform CPS on the acceptable use and misuse of attachment tools in the context of maltreatment.

Conclusions

Training in attachment theory and observation as a key ingredient for success

Based on our work with the AVI, we advocate for the importance of training in attachment theory and observation. In our view, practitioners' training to develop sharpened observational skills through an attachment theory lens represents a key ingredient to a more refined understanding of the positive and negative dynamics of parent-child interaction, a fundamental condition for successful assessments and interventions with maltreating samples. In addition, we believe that adequate training should always involve regular supervision with practitioners. Supervision is central for the appropriation of new practices by professionals and should remain (at a variable frequency) once training is over. As such, we have developed, in collaboration with other researchers and clinical experts in the field, a community of practice for professionals trained in attachment theory and the AVI. The CARE, the Montreal's *Community of practice on Attachment and Relational intervention*, offers professionals monthly group supervision to promote and ensure continuous training. In the specific context of CPS, by increasing caseworkers' abilities to identify parents' good enough parenting and potential for positive change, our hope is that recommendations for placement in the child's best interest are enhanced.

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The Impact of Attachment-Based Interventions on the Quality of Attachment Among Infants and Young Children

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Introduction

A key biologically-based task for infants and toddlers is developing attachment relationships with caregivers. The quality of attachment that children develop appears largely dependent on caregivers' availability.[1] When caregivers are responsive, children tend to develop secure attachments, seeking out caregivers directly when distressed. When caregivers reject children's bids for reassurance, children tend to develop avoidant attachments, turning away from caregivers when distressed. When caregivers are inconsistent in their availability, children tend to develop resistant attachments, showing a mixture of proximity-seeking and resistance. Although it may be optimal for children in our society to develop secure attachments,[2-4] each of these three attachment types can be seen as well-suited to caregivers' availability. When caregivers are frightening to children, though, children have difficulty developing organized attachments and instead often develop disorganized attachments, which leave children without a consistent strategy for dealing with their distress. Attachment quality has been linked with later problem behaviours, with disorganized attachment especially predictive of dissociative symptoms (e.g., seeming spacey, "in a fog" etc.),5 and internalizing and externalizing problems.[6-8] A number of prevention and intervention programs have been developed that aim to improve infant attachment quality.

Subject

Some attachment-based interventions target parental sensitivity (e.g., following the child's lead, nurturance to distress, avoidance of frightening behaviours) as the primary mechanism of change. Parental behaviour reflects a proximal intervention target– that is, that parental behaviour drives child expectations of parental availability and thus attachment; thus, changes in parental behaviour should lead to changes in child attachment. Other interventions target more

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distal factors, such as parental representations, which reflect how adults process attachment-related thoughts, feelings, and memories. Some would argue that changing parental representations or addressing other distal factors (e.g., parental depression, trauma history, environmental stressors) is necessary to lead to sustained behavioural change.

Problems

Programs that share the goal of enhancing attachment may differ in their focus, in their intervention strategy, and in the populations targeted. Whereas an overall objective may be to enhance attachment quality, other goals of improving quality of life, increasing life skills and reducing symptomatology may differ, depending on the intervention and the population served, as well as the level of fidelity to the treatment model. There is disagreement among experts in the area regarding the nature of what is needed. For example, some[9] suggest that intensive interventions that start prenatally are essential, whereas others[10] suggest that targeted, short-term interventions are needed. Assessment of treatment process and treatment fidelity is crucial to knowing what is being provided in an intervention. For example, Korfmacher et al.[11] found that their intervention, intended to modify parental state of mind, rarely engaged parents in insight-oriented work.

Research Context

In 2003, a meta-analysis reported by Bakermans-Kranenburg, van IJzendoorn and Juffer[10] found 29 studies that included attachment security as an outcome. Of these, 23 were randomized clinical trials, with a total of 1,255 participants. The nature of the interventions, and the populations served, differed widely from one study to another. Nonetheless, meta-analytic results allow assessment of the importance of factors such as intervention intensity and population.

In the last two decades, many more studies have examined attachment as an outcome. In 2018, Facompre, Bernard, and Waters[11] reported in a meta-analysis on the rates of disorganized attachment in 16 experimental studies. Overall, interventions were associated with reduced incidence of disorganized attachment. Effects were larger in more recent studies than in older studies, in maltreated samples versus non-maltreated samples, and among children who were older versus younger.

Key Research Questions

Key research questions include:

- Do intervention or prevention programs enhance the quality of children's attachments to their caregivers?
- What are the characteristics of successful interventions?
- For whom are interventions most successful?
- What is the process by which intervention programs work?
- Can interventions be disseminated widely with fidelity?

Recent Research Results

In the last decade, the evidence base for many attachment-based interventions has increased.[13] A number of interventions have been tested through randomized clinical trials and have been found to result in higher rates of security of attachment and/or lower rates of disorganized attachments than control interventions. Among these are interventions that directly target parenting sensitivity as seen in Attachment and Biobehavioral Catch-up (ABC[14]), Video-Feedback Intervention to Promote Positive Parenting (VIPP[15]), and several others, as well as interventions that target parental representations, such as Child-Parent Psychotherapy (CPP[16]) and Minding the Baby (MTB[17]).

The question of what works for whom is an important one. For the most part, we do not have empirical evidence to suggest different attachment-based interventions for different issues. To this point, there is no support for the idea that lower risk parents will do better with less intensive services and higher risk parents will do better with more intensive services.

In general, interventions that are efficacious in lab-based trials show diminished effectiveness in the community.[18] One of the culprits for the drop-off in effectiveness is that fidelity is not ensured or is not measured well.[19] Attachment-based interventions with clearly specified fidelity assessments have the best chance for effective implementation.

Conclusions

1. Interventions are effective in enhancing children's attachment quality.
2. Interventions that target specific issues, most especially parental sensitivity, appear more effective than interventions with more global goals.

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3. Interventions that are brief are at least as effective as those that are of longer duration.
4. Interventions that begin at older ages appear to be more effective than those begun earlier.

Implications

The research evidence supports the efficacy of interventions to enhance attachment quality. Interventions that are brief and target parental sensitivity have been shown to be effective, as are other interventions that are time-intensive and target parent representations.

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Attachment-Based Intervention and Prevention Programs for Young Children

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Introduction

Bowlby's attachment theory is a theory of both psychopathology and normal socio-emotional development. It is based on the idea that the early relationship that develops between the infant and caregiver provides the foundation for later development. Bowlby's theory attempts to explain how the early relationship contributes to psychological well-being or later psychopathology. The term attachment is used to describe the affective bond that develops between an infant and caregiver.[1,2] Attachment is not a characteristic of the infant, nor is it a characteristic of the caregiver. Rather, it is a pattern of emotional and behavioural interaction that develops over time as the infant and caregiver interact, particularly in the context of the infant's needs and bids for attention and comfort.

Through repeated interactions with the same adults, an infant begins to recognize caregivers and to anticipate the behaviour of the primary caregiver, usually the mother. Bowlby described the infant as biologically predisposed to use the caregiver as a haven of safety, or a secure base, while exploring the environment.[1] So an infant who feels threatened will turn to the caregiver for protection and comfort. The caregiver's responses to such bids help mould the attachment relationship into a pattern of interaction that develops over time. By the end of the first year of life, the history of the relationship between infant and caregiver allows the infant to begin to anticipate the caregiver's response to her bids for comfort, and to act in accordance with those expectations.

Another tenet of attachment theory is that from these first relationships, infants form mental representations of the self, others and the relationship between self and other. Bowlby called these representations inner working models.[1] As the infant develops and encounters the world beyond that first relationship, the inner working model guides her behaviour and expectations in subsequent relationships as well.

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Mothers who are sensitive and comforting when the infant makes bids for comfort will have infants who continue to seek out the mother when distressed, and will be calmed by contact with the mother. The infant's inner working model will lead her to see others as reliable and compassionate, and herself as worthy of this kind of attention. This pattern has been labelled secure.[1,2]

In contrast, if the caregiver has been unavailable or only erratically available or insensitive or rejecting when the infant has sought contact, the infant will learn not to seek contact when distressed or to seek comfort only in an ambivalent manner, as strong bids might alienate an already unreliable caregiver. The inner working model of this infant will lead her to see others as untrustworthy and potentially rejecting, and herself as not deserving reliable, sensitive care. These patterns have been labelled insecure.[1,2] Insecure attachment patterns have been further specified into two patterns: avoidant attachment and resistant (or ambivalent) attachment. In addition, some infants are classified as disorganized/disoriented with regard to attachment because they do not seem able to resort to a single, organized attachment pattern in the face of threat or stress. Instead, they become disoriented or resort to conflicting behaviour strategies.

Subject: Attachment and Later Development

Research has demonstrated that security of attachment during infancy predicts aspects of social development during childhood and adolescence, such as empathy,[3,4,5] social competence[5,6,7,8,9] and behaviour problems,[10,11,12] with secure attachment predicting more optimal developmental outcomes and insecure attachment predicting behaviour and relationship difficulties. We have also found a secure attachment to be a major protective factor for children who function in a competent fashion even in the face of adversity.[13] In addition, attachment relationships may have long-term effects on functioning by influencing the course of biological development, including brain development.[14]

Inner working models are carried forward from infancy throughout the life course and, as noted above, they influence the individual's expectations and behaviour in relationships, including parenting in the next generation. Using the Adult Attachment Interview (AAI),[15] a number of studies have demonstrated that parent attachment organization is related to infant attachment patterns. Parents with secure organizations are likely to have infants who are securely attached with them, and parents with insecure organizations are likely to have infants who are insecurely attached with them.[16,17]

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Because of the many positive outcomes associated with a secure attachment, the implications are clear. Design (and evaluate) prevention and intervention programs to promote a secure parent-infant attachment relationship in order to improve developmental outcomes of infants and children who are at risk for poor developmental outcomes and prevent behaviour problems and psychopathology.

Problems: Attachment-Based Prevention and Intervention Programs

Attachment relationships, like all other aspects of development, do not exist in isolation from their context. As note d above, caregivers who respond to their infant's needs and cues in a sensitive fashion are likely to develop a secure attachment relationship with their infant. There are many personal (e.g., mother's depression) and interpersonal (e.g., violent relationship with spouse) factors that may make it more difficult for the caregiver to respond to the infant in a sensitive and emotionally responsive fashion. In addition, a host of environmental factors, such as chaotic living conditions, may interfere with the developing attachment relationship, particularly when intervening with families from high-risk populations who face multiple personal and environmental challenges. Many programs were not equipped to deal with the problems of high-risk families.

Research Context: Results of Attachment Interventions

In 1995, van Ijzendoorn et al.[18] conducted a review of 12 attachment interventions, and in 2000, Egeland and colleagues[19] found a few more programs that had been implemented and evaluated. In 2003, the Dutch investigators conducted another meta-analysis that included 29 investigations designed to enhance attachment security. More recently, there has been an increase of attachment-based prevention and intervention programs.[20]

Mountain et al.[21] conducted a systematic review and meta analysis to determine the effectiveness of early intervention for improving attachment security. They found that early intervention resulted in a secure attachment and improved parental sensitivity. These findings replicate findings of a previous review and meta analysis.[20]

There are basically two broad types of intervention programs designed to enhance the quality of mother-infant attachment: (1) those that endeavour to help the parents become more sensitive to infant cues; and (2) those that attempt to change parents' representations of how they were cared for by their own parents. Many of the attachment interventions fall into one of these two

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categories, while others combine the two approaches and still others, such as Beckwith's[22] program emphasizing social support.

Key Research Question

Since a secure parent-infant attachment relationship is associated with positive developmental outcomes and has been found to be a protective factor in the face of adversity, it behooves us to develop, implement and evaluate attachment-based intervention/prevention programs. There are many research questions that remain to be answered, particularly having to do with the long-term cost-benefits associated with attachment-based prevention programs. In addition, researchers need to determine who is most likely to benefit from particular program approaches and strategies.

Recent Research Results

Several interventions conducted in the Netherlands have been successful in their attempts to improve mother's sensitivity to infant's cues. Van den Boom[23] randomly assigned 100 irritable infants and their mothers to treatment and control and found that those in the treatment group were more sensitive and had more securely attached mother-infant pairs compared to control dyads. The aim of this home-based intervention was to enhance parental sensitivity. The intervention consisted of only three sessions and positive outcomes were found at 24- and 42-month follow-ups. Using a similar approach with adopted infants and their adoptive parents, Juffer et al.[24,25] also obtained positive findings.

In a more recent investigation, van Zeijl and colleagues[26] used the video feedback procedure with a group of 1- to 3-year-old children who had high levels of externalizing behaviour. The intervention was effective in decreasing overactive, oppositional, and aggressive behaviour compared to the control group. Later analyses of these data by Bakermans-Kranenburg and colleagues[27] indicated that genetic differences moderated the effects of intervention. Children with a certain genotype on the dopamine receptor gene showed the largest decrease of externalizing behaviour in the cases where parents showed the largest increase in the use of positive discipline. Findings that children's susceptibility to changes in their environment depends in part on genetic differences are very provocative and hopefully will lead to more gene by environment studies in the area of prevention and intervention in the early years.

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The results of evaluations of programs designed to alter parents' cognitive representations have yielded many positive findings, but few have obtained significant differences between treatment and control on attachment classifications. Lieberman et al.[28] identified a group of anxiously attached infants from high-risk families. They, like most investigators attempting to alter inner working models, used an infant-parent psychotherapy approach. The focus of the once-a-week home visits was on responding to the affective experience of the mother and child, both as reported by the mother and as observed through mother-child interactions. The intervenor attempted to clarify the mother's affective experiences and feelings toward her toddler and toward the intervenor. They found significant differences between intervention and control groups in maternal empathy, goal-corrected partnership behaviour, child avoidance and child anger towards mother, with the intervention group showing optimal behaviours on each of these variables. Using a similar approach, Toth and colleagues[29] found a higher rate of secure attachment for children of depressed mothers who were in the toddler-parent psychotherapy group compared to those in the randomly-assigned control group.

Project STEEP (Steps Toward Effective Enjoyable Parenting) is a comprehensive program designed to change inner working models and enhance maternal sensitivity.[30] The approach involved home visits and group sessions beginning prenatally and continuing for two years. The program resulted in many positive outcomes. For example, mothers in the STEEP program were more sensitive, had a better understanding of infant development and lower depression and anxiety scores, were more competent in managing their family affairs and had a larger social support network compared to control mothers.

Conclusions

The positive long-term developmental outcome associated with a secure parent-infant attachment relationship provides an excellent rationale for implementing attachment-based prevention programs early in life. Recognizing the significance of this early relationship, however, has not resulted in a large number of attachment-based interventions. A variety of early parent education and home visitation programs exist, but very few have as their primary goal facilitating the development of a secure attachment relationship. The results of the evaluation of existing attachment-based interventions are encouraging, particularly the Dutch studies involving relatively low-risk samples. Based on the findings of the Dutch studies, it appears that attachment-based interventions that focus on enhancing sensitivity are likely to be successful with parents who are motivated to learn ways of responding with their difficult infants. For more

high-risk families, it appears that more comprehensive, long-term interventions are necessary.

Implications

Based on attachment theory and research, as well as results from evaluations of existing attachment-based interventions, it would be recommended to incorporate attachment-based intervention/prevention programs into existing home visitation and parent education programs for high-risk families of young children, as well as investigate new approaches for changing parents' cognitive representation of their attachment with their parents. Much is known about parent-child interaction, parental characteristics and beliefs, and contextual factors that are antecedents of a secure attachment relationship. This knowledge needs to be applied in the development of the next generation of attachment interventions. The needs and strengths of high-risk families are highly varied. Intervention programs must be designed to meet the unique needs of each family as well as to take advantage of their strengths.

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Attachment-Based Interventions : Comments on Dozier, Egeland, and Benoit

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Introduction

Attachment theory provides a powerful perspective for investigating the nature of the relationship between experiences of caregiving and developmental outcome.[1,2,3] Attachment organization in infants and toddlers has been linked with future adaptation.[4,3] Therefore, it is important to promote secure attachment relationships between caregivers and their offspring. In the last decade, investigators have increasingly directed their efforts toward understanding and modifying attachment relationships in high-risk and psychiatric populations.[5,6,7] Dozier, Egeland, and Benoit have been at the forefront of theoretical and research initiatives designed to prevent insecure relationships and promote secure attachment relationships in young children. In these articles, the authors review the literature on attachment-based interventions and highlight key empirical findings regarding the efficacy of prevention and intervention initiatives.

Research and Conclusions

Dozier begins by reviewing how the type of caregiving provided affects the quality of children's attachment. She goes on to explain that the strongest predictor of infant attachment is parental state of mind regarding attachment. Dozier also discusses the variations among intervention strategies utilized to enhance attachment security. She draws upon a 2003 meta-analysis conducted by Bakermans-Kranenburg, van Ijzendoorn and Juffer, in which they concluded that interventions that target parental sensitivity and are initiated after approximately six months of age are more effective than interventions with more global goals that begin during the early months.[8] Moreover, she concludes that brief interventions are at least as effective as those that are longer in duration.

Egeland emphasizes that security of attachment during infancy has been consistently shown to predict aspects of social development during childhood, with secure attachment relating to more optimal developmental outcomes and insecure attachment predicting socioemotional

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maladaptation. Egeland further states that attachment relationships may have long-term effects on the course of biological development. Consistent with Dozier, Egeland therefore concludes that it is critical to design and evaluate programs to promote a secure parent-infant attachment relationship. Like Dozier, Egeland also discusses two broad types of intervention strategies designed to foster secure attachment relationships: 1) strategies that target parental sensitivity; and 2) strategies that strive to alter parental representation with respect to their own histories of caregiving. A central tenet of attachment theory is that the early relationships between infants and their caregivers lead to the formation of mental representations of the self, others, and of the self in relation to others. Therefore, the focus of interventions on modifying these mental representations or targeting caregiver behaviour assumes importance. Egeland proffers an important caveat to findings that support the utilization of short-term interventions that target modifying parental sensitivity. Specifically, Egeland cautions that although these programs are successful with relatively low-risk samples, more comprehensive and long-term interventions are likely to be necessary with high-risk families.

Benoit's article is focused on a particular pattern of insecure attachment, the disorganized classification. Unlike organized attachments, in which coherent strategies for relating to the caregiver in times of stress are present, disorganized attachment is not characterized by any consistent strategy of relating to the caregiver. Disorganized attachment has been identified as particularly significant in putting youngsters at risk for socioemotional maladjustment and psychopathology. Benoit emphasizes that although caregiver sensitivity has been linked with organized patterns of attachment, it has not been shown to relate to disorganized attachment. Benoit discusses the fact that, in an analysis of 15 studies from their 2003 meta-analysis, Bakermans-Kranenburg and colleagues concluded that attachment interventions that focus on preventing or reducing disorganized attachment may need to target the reduction of atypical caregiver behaviours.[8] Specifically, frightened or frightening caregiver behaviour has been implicated in the etiology of disorganized attachment.

Implications for Development and Policy

Taken in tandem, all three of these papers support the importance of preventing insecure relationships and promoting secure attachment relationships between young children and their caregivers. Over the last several decades, evidence has mounted regarding the importance of establishing secure attachment for future adaptive development. Increasingly, prevention and intervention programs have targeted security of attachment as an outcome goal. Although there

has been some evidence suggesting that short-term interventions that target parental sensitivity are efficacious and perhaps superior to long-term approaches that strive to modify parental state of mind regarding attachment, this controversy is far from resolved. In fact, it would be extremely premature to conclude that one approach is preferable to the other. As Egeland cautions, short-term behavioural approaches may be effective with lower-risk groups of infants and mothers, but we still do not have evidence that they would be as effective, or effective at all, with higher-risk populations.

In fact, studies recently conducted at Mt. Hope Family Center have offered compelling evidence that preventive interventions that target maternal representations of relationships are very effective in promoting attachment security. In the first investigation, toddler offspring of mothers who had experienced a major depressive disorder since the birth of the child were randomly assigned to an attachment-theory informed intervention or to a community standard condition. A group of non-depressed mothers served as a normative comparison group. Although at baseline toddlers with depressed mothers evidenced higher rates of insecurity than did toddlers with non-depressed mothers, at the completion of the intervention the group that received the attachment-theory informed intervention had significantly higher rates of security than did participants who received the community standard intervention. Importantly, rates of security in the mother-child dyads that received the attachment-theory informed intervention did not differ from those present in the dyads where mothers were not depressed.[5] For toddlers who participated in the attachment intervention, there was also a greater maintenance of secure attachment organization among those who were initially secure, as well as a greater shift from insecure to secure attachment groupings. Similarly compelling results have been obtained with maltreated infants, where baseline rates of insecurity were over 90% and where post-intervention attachment security did not differ from that of non-maltreated infants. Maltreated infants randomized to the community standard condition continued to evidence extremely high rates of insecure attachment consistent with that present at baseline.[9] Interestingly, in the latter preventive intervention, a didactic and more behaviourally focused intervention was just as effective as one dealing with maternal representations in promoting secure attachment. Conversely, in the evaluation of a preventive intervention for maltreated preschool-aged children, only an intervention that targeted maternal representations resulted in improvement in child representations of caregivers and of self.[10] Thus, the issue of preferred intervention strategy appears to be far from resolved and caution must be exercised in bringing premature closure to this issue.

A number of other important issues need to be considered before definitive conclusions can be reached on how best to promote secure attachment organization. First, it is unclear how durable the effects of the interventions are and whether durability might vary as a function of the length and intensity of the intervention being provided. Second, few if any investigations have sought to elucidate mediators of the intervention outcome. That is, while we may know that a given intervention has been efficacious, we know considerably less about the mechanisms that may be contributing to its efficacy. Such knowledge could be extremely helpful in identifying critical aspects of an intervention and eliminating those that may be costly but do not add to the overall value of the intervention. Finally, the bulk of evaluations have involved well-controlled efficacy trials that utilize clear inclusion/exclusion criteria and well-trained and supervised clinicians, and also monitor the fidelity of the intervention being provided. Although such randomized clinical trials are necessary in order to establish a knowledge base, we must also work toward exporting these clinical methods into real-world arenas and then continue to evaluate their effectiveness. Only then will we truly know how best to promote secure attachment and what approaches may be most effective for a given population.

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Supporting Families to Build Secure Attachment Relationships : Comments on Benoit, Dozier, and Egeland

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Introduction

Since Bowlby and Ainsworth formulated attachment theory,[1,2] many early intervention programs have been launched that aim to promote secure child-parent attachment relationships. Usually, these intervention programs are designed to enhance parental sensitivity, the ability to accurately perceive children's attachment signals, and the ability to respond to these signals in a prompt and appropriate manner.[2] The ultimate goal of these interventions is to turn insecure-avoidant (A) and insecure-resistant (C) attachment relationships into secure (B) child-parent attachment relationships.[2] In a few programs, the intervention is not only directed at sensitive parental behaviour but also at maternal mental attachment representations, as in the STEEP (*Steps Toward Effective Enjoyable Parenting*) program described by Egeland. According to Benoit, with the discovery of a new insecure attachment category, disorganized attachment (D),[3] new challenges arose for attachment-based interventions. Because of the negative impact of, in particular, disorganized attachment on child outcomes, attachment-based interventions should not, or not only, focus on the empirically derived determinants of *organized* (A, B, and C) attachment, such as parental (in)secure mental attachment representations and sensitive behaviour (see Dozier), but also on the determinants of *disorganized* (D) attachment. Empirical studies have found evidence for Main and Hesse's[4] model that parents' unresolved loss or trauma is linked to children's insecure-disorganized attachment through frightening or frightened parental behaviour. However, there are as yet no reported outcomes from interventions that have directly targeted frightening behaviours. As a first step, it is important to evaluate the effects of attachment-based interventions that include infant attachment disorganization as an outcome measure (see below), but in the next step interventions that are specifically designed to prevent insecure disorganized attachment should be tested.

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Research and Conclusions

Egeland elegantly summarizes the main tenets of attachment theory. According to Bowlby,[1] infants are biologically predisposed to use their parent as a haven of safety to provide comfort and protection when they are distressed, and as a secure base from which they can explore the environment. As children develop, they form mental representations or inner working models on the basis of their experiences with their caregivers. If children have had positive experiences with sensitive parents, they will continue to rely on them by showing their distress and being calmed by contact with the parent (defined by Ainsworth[2] as secure patterns of attachment). In contrast, insensitive parents reject their children's bids for comfort, and other parents are inconsistently available. Children of these parents develop insecure attachment relationships, either avoiding, or angrily or passively resisting the parent. Secure attachments during early childhood predict more optimal developmental outcomes in later childhood (e.g. social competence), whereas insecure attachments predict less optimal child outcomes. Drawing on the many positive outcomes of secure attachment found in empirical studies, Egeland comes to a crystal-clear conclusion that programs should be designed and evaluated to promote secure attachment relationships in order to improve developmental outcomes of children who are at risk for poor developmental outcomes. Egeland reviews several attachment-based interventions (e.g. the comprehensive STEEP project). As well, a first meta-analysis in this field[5] is described. This meta-analysis of the effects of 12 attachment-based interventions on maternal sensitivity and infant security showed that these interventions were more effective in changing parental insensitivity than in changing children's attachment security.[5]

Egeland does not address the follow-up of this first meta-analysis on parental sensitivity and attachment, nor does he cover the question of how insecure disorganized attachments might be prevented. Recently, 88 interventions on maternal sensitivity and infant security in 70 studies were included in a thoroughly extended and updated quantitative meta-analysis.[6] This meta-analysis showed that interventions that specifically focused on promoting sensitive parental behaviour appeared to be rather effective in changing insensitive parenting as well as infant attachment insecurity. One of the conclusions of this series of meta-analyses, also illustrated in the title of the paper "Less is more," was that interventions with a modest number of intervention sessions (up to 16) appeared to be more effective than interventions with larger numbers of sessions, and this was true for clinical as well as for non-clinical groups.[6] This diverges from Egeland's conclusion that more comprehensive, long-term interventions are

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necessary for high-risk families. Although this might be true for other intervention goals, such as helping high-risk mothers to cope with adversity or the daily hassles surrounding the birth of a child, the recent meta-analysis shows that for sensitivity and attachment, the most effective way is to provide attachment-based interventions in a modest number of sensitivity-focused sessions.

Dozier elaborates on parental state of mind as one of the strongest predictors of infant attachment. Parents who are able to reflect on their own childhood experiences in a coherent way are said to have autonomous states of mind. When parents are not coherent in discussing their own attachment experiences, they are said to have non-autonomous states of mind. Here, the work of Main comes to the fore: the Adult Attachment Interview[7] enables coders to distinguish reliably between parents with insecure (dismissing, preoccupied or unresolved) states of mind and parents with secure (autonomous) attachment representations. Several empirical studies and a meta-analysis[8] have found that insecure parents usually have insecurely attached infants and secure parents tend to have secure children. Dozier remarks that some attachment-based interventions are designed to target parent state of mind as a means of changing infant attachment, although many other interventions try to change parental sensitivity alone.

Citing the recent meta-analysis of attachment-based interventions by Bakermans-Kranenburg and colleagues,[6] Dozier summarizes the main outcomes: brief sensitivity-focused interventions that start after the child is at least six months old are most successful, irrespective of parental risk status or socioeconomic status. Dozier does not explicitly address disorganized attachment and the implications of disorganized attachment for intervention research.

In contrast to the first two authors, Benoitexplicitly describes the challenge of the discovery of insecure-disorganized attachment for the field of attachment-based interventions. At the beginning of her paper, she notices that of the four patterns of infant attachment (secure, avoidant, resistant, disorganized), the disorganized classification has been identified as a powerful childhood risk for later psychopathology. She continues with the observation that for disorganized attachment the focus of the intervention should not be parental sensitivity, as she notes that sensitivity is not linked to disorganized attachment. Nevertheless, a meta-analysis showed that interventions with a focus on sensitivity were successful in reducing or preventing attachment disorganization[9] (see below), and we noted that the explanation for this finding might be that parents become more focused in the interaction with their child, and thereby less prone to dissociative processes in the presence of the child. According to Benoit, one recently identified

pathway to disorganized attachment is children's exposure to specific forms of aberrant caregiving behaviours that are referred to as "atypical." Therefore, Benoit concludes that attachment-based interventions should focus both on improving parental sensitivity (to promote secure attachment) and on reducing or eliminating atypical parental behaviours (to prevent or reduce disorganized attachment). Benoit's own study, which demonstrated the effects of a brief, focused, behavioural parent training intervention in reducing atypical caregiver behaviours, is a first example of much needed studies designed to reduce frightening/frightened or atypical parental behaviours. It would be exciting to learn whether this type of intervention was indeed successful in preventing or reducing disorganized attachment.

Implications for Clinical Practice and Services

What can we conclude about attachment-based interventions and the state of the art of intervention research? Based on the two meta-analyses[5,6] conducted in 1995 and 2003, several conclusions for clinical practice and services can be drawn. It has been empirically proven that interventions can successfully enhance parental sensitivity and promote secure attachment in children, in particular when the intervention is relatively brief (up to 16 sessions), behaviourally oriented, focuses on sensitivity only (instead of broader interventions including social support, etc.), and starts after the infant's age of six months. However, long-term and broadly-focused support of multi-problem families in coping with their daily hassles may be needed in order to enable them to focus on sensitivity subsequently.[6] The 2003 meta-analysis also found an important dose-response relation between the success of the intervention on parental sensitivity and its impact on children's attachment security: only interventions that brought about substantial effects on sensitivity succeeded in changing attachment insecurity.[6]

Both meta-analyses included interventions designed to change children's insecure, *organized* attachment relationships: insecure-avoidant and insecure-resistant relationships, and not the clinically important category of insecure-*disorganized* attachment. Today, few interventions have been specifically designed to prevent attachment disorganization. In the same vein, most attachment-based interventions do not report effects on disorganized attachment. This is a serious gap in our knowledge for two reasons: (1) Recent research has shown that disorganized attachment is a predictor of psychopathology, whereas insecure-avoidant and resistant attachment lead to less optimal but not pathological child adjustment.[10] Therefore, it is imperative to evaluate attachment-based interventions on their potential value to prevent attachment disorganization. (2) Because even secure children are considered insecure when

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their attachment behaviour shows serious signs of disorganization, it is of great relevance for interventions to report not only effects on secure attachment but also effects on disorganized attachment.

Recently, a narrative review and quantitative meta-analysis has been completed including 15 preventive interventions that included infant disorganized attachment as an outcome measure.[9] Although the overall effect of all interventions combined was not significant, some interventions did succeed in preventing disorganized attachment in children. These interventions shared the following characteristics: They started after six months of the infant's age rather than before six months; they were sensitivity-focused; and they involved samples with children at risk rather than at-risk parents.[9]

As an example, a preventive intervention in families with internationally adopted infants significantly enhanced maternal sensitivity and also significantly reduced disorganized attachment: in the intervention group there were only 6% disorganized-attached children compared with 22% in the control group.[11] This study used a brief intervention of three home-based sessions of video feedback focusing on parental sensitivity, with the intervention starting when the child was six months old. Based on the positive outcomes of this study, adoption practice in the Netherlands has changed. New adoptive parents can apply for a new adoption after-care service: up to four sessions of video feedback, implemented by a central adoption service organization financed by the government. An increasing number of adoptive parents make use of this new service. The video-feedback intervention used in adoptive families[11] was extended and adapted into the Leiden VIPP (*Video-feedback Intervention to Promote Positive Parenting*).[12, 13] The VIPP program and several adaptations and extensions have been used in different cultures and contexts, for example with insecure or eating-disordered mothers, in families with premature and sick infants or externalizing toddlers, and in a daycare setting.[14]

Future studies should also focus on evaluating interventions that are explicitly directed at parental frightening or frightened behaviour as the empirically derived determinant of infant disorganized attachment. As the meta-analyses on organized and disorganized attachment all indicate an important role for parental sensitivity, it may be wise to include the enhancement of parental sensitivity in all attachment-based interventions.

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Early Day Care and Infant-Mother Attachment Security

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Introduction

Whether and how non-maternal child-care experience affects children's development have been of long-standing interest to parents, policymakers and developmental scholars. Ever since Bowlby[1] promulgated attachment theory, thinking derived from it has led some to expect day care, especially when initiated in the earliest years of life, to undermine the security of infant-parent attachment relationships. To some, this was because day care involved the infant's separation from mother (or other principle caregiver), as separation from the attachment figure was inherently stressful. Separation could also undermine the mother's own capacity to provide sensitive care, the primary determinant of security, thereby fostering insecurity indirectly (i.e., separation-insensitivity-insecurity). A final reason for anticipating a link between day care and attachment security was because security reflected general emotional well-being, so adverse effects of day care in infancy would manifest themselves as insecure attachment.

Background

Early research on the link between day care and attachment, often carried out on children 3-5 years of age, provided no compelling evidence to support the claim that day care undermined security.[2] But by the mid-1980s, studies carried out on much younger children began to chronicle links between day care and insecurity as measured in the Strange Situation Procedure (SSP) (e.g., Barglow, Vaughn & Molitar[3]). This led Belsky[4,5,6] to conclude that infant day care, especially that initiated on a full- or near full-time basis beginning in the first year of life,[7] was a "risk factor" in the development of insecure attachment in infancy (and of aggression and disobedience in 3-8 year olds).

This conclusion did not go unchallenged. One criticism was that the apparent influence of early and extensive day care on insecurity was the result of other explanatory factors (e.g., family

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income) not adequately accounted for in existing research.[8] Another was that (unmeasured) poor quality care and not timing and quantity of care was the influential factor.[9] And a third was that independent behavior displayed by day care children not particularly stressed by the SSP – due to their familiarity with separation – was misconstrued as avoidant behavior, leading to erroneous assessments of children as insecure-avoidant.[10]

Research Questions

All agreed, however, that more research was needed to illuminate the conditions under which early day care did and did not undermine – or enhance – attachment security. Considered especially important was (a) taking into account confounding child, parent and family background factors that could be responsible for any putative child care effects; (a) distinguishing and disentangling potential effects of distinctive features of the child-care experience, particularly quality, quantity and type of care (e.g., center-based vs. home-based); and (b) determining whether day care was associated with less separation distress in the SSP or independent behavior was mischaracterized as avoidant behavior.

Recent Research

The NICHD Study of Early Child Care and Youth Development (SECCYD), launched in 1991 in the US, sought to address these issues and many others.[11] It followed more than 1300 children from birth through the primary-school years[12] and into adolescence,[13] while administering SSP assessments at 15 and 36 months.

After taking into account a host of potentially confounding background factors, results proved strikingly consistent with the risk-factor conclusion[14] – even though the opposite is implied by many writers.[15,16] Typically emphasized is that no single feature of the day care experience *in and of itself* – quantity, type or quality of care – predicted attachment security, *seeming* to suggest no effect of day care on attachment security. Yet what the findings actually revealed was a "dual-risk" phenomenon.[17] Although the strongest predictor of insecurity at 15 months of age was, as expected, insensitive mothering (observed at ages 6 and 15 months), this effect was *amplified* if any one of three distinct child-care conditions characterized the child's experience across the first 15 months of life: (a) averaging more than 10 hours per week in any type of care, irrespective of quality; (b) enrolment in more than a single child-care arrangement; and (c) exposure to low quality care. The first two amplifying conditions applied to most children being

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studied. But only the first, quantity of care, also contributed to the prediction of attachment insecurity at 36 months,[18] again in interaction with insensitive mothering. Just as important was evidence that infants with extensive day care experience (a) were not less stressed in the SSP than other infants (see also[19]) and that (b) putatively independent behaviour was not misconstrued as avoidant behaviour.[14]

Notably and more recently, Hazen and associates re-examined the issue of quantity of care using NICHD SECCYD data, this time focusing on disorganized attachment in particular.[20] Results revealed that after the age of 6 months as care hours increased from 40 to 60 hours per week, risk of disorganized attachment increased; and after 60 hours per week it increased exponentially. These results emerged with statistical controls for quality of care, family income and infant temperament. Importantly, similar results emerged in a separate and smaller study carried out in Austin, TX (n = 125).

Two other reasonably large-sample studies yield results that are at odds with those of the US study. In one investigation of more than 700 Israeli infants, Sagi and associates[21] found that "center-care, in and of itself, adversely increased the likelihood of infants developing insecure attachment to their mothers as compared with infants who were either in maternal care, individual nonparental care with a relative, individual nonparental care with a paid caregiver, or family day-care." Additional results suggested it was "the poor quality of center-care and the high infant-caregiver ratio that accounted for this increased level of attachment insecurity among center-care infants" (see also[16]). In a second study of 145 first-born Australian infants, Harrison and Unger[22] focused on maternal employment more than features of day care. Return to employment before five months postpartum – and thus earlier use of child care – predicted decreased rates of insecurity at 12 months of age relative to returning to work later in the first year or not at all. The Australian mothers were more likely than their American and Israeli counterparts to be employed part-time rather than full-time.

Perhaps the most recent work addressing what seems to have become a less pressing question in developmental science—effects of day care on attachment--is that of Carcamo, Vermeer, vand der Veer and van IJzendoorn which was carried out in Chile. This research involved a small sample of 95 poor Mapuche children younger than 12 months of age, 36 of whom entered day care on a full-time basis following first measurement at age 6 months. A second measurement at age 15 months afforded assessment of change in attachment, using The Attachment During Stress Scale; this observational measure had been found to correlate reasonably well with

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Strange Situation classifications.[23] Evidence revealed, consistent with expectations, that being in day care was associated with increased attachment security over time.

Research Gaps

It remains unclear why results from different locales produce variable findings. It could well involve the broader, national child care systems in which day care is embedded. More cross-national research seems called for.

Characteristics of children themselves, perhaps especially their genetic make up, also merits further consideration. After all, ever more evidence indicates that children vary substantially in their susceptibility to environmental influences,[24,25,26] including day care[27] with some proving more developmentally malleable than others.

Conclusions

After decades of debate and study, findings from the largest studies of day care and attachment compellingly discredit any claim that “no relation exists between day care and attachment.” Also disconfirmed are assertions that the SSP is methodologically unsuited for evaluating effects of day care or that, at least in the US, adverse effects of day care are simply a function of poor quality care. Nevertheless, the fact that results of three large-scale studies carried out in different locales vary substantially should make it clear that there are probably no inevitable effects of day care on attachment. Effects appear contingent on the societal context in which day care is experienced.

Implications

The fact that detected effects of day care on attachment security vary substantially by national context means that it is precarious to draw strong inferences from attachment theory as to what the effect of day care will be. Ultimately, day care is a multi-dimensional phenomenon, so questions such as “is day care good for infants (or young children)?” are too simplistic. Quality, type, timing and quantity of care must be distinguished and effects of these features of the child care may vary as a function of the larger familial, community, societal and cultural context in which child care occurs. Not to be forgotten in any evaluation of the effects of day care are humanitarian considerations: What, not only, do mothers, fathers, policymakers and society more generally want, but what do children want?

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Origins of Attachment Security in Day Care and at Home: Comments on Belsky

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Introduction

Child care experience affords developmental opportunities as well as risks for young children. An expanding research literature indicates that child care is associated with stronger cognitive, language and math skills when children are in school, especially if the quality of child care is high. The same research also indicates, however, that child care experience may be a risk factor for problematic social behaviour with adults and peers. Equally important, these studies have highlighted the influences that can moderate these outcomes, including the quality of care, setting, age of onset and duration of care, the child's relationships with care providers, and even the child care histories of peers.[1,2,3,4] Beginning with a straightforward question- “what are the effects of child care experience on children's development?”- researchers have moved to more complex questions concerning the contexts of care and other influences on these developmental outcomes. As Belsky’s[5] analysis shows, the same is true concerning the effects of early child care experience on infant-mother attachment security.

Research and Conclusions

What is the most important influence in determining whether infants and young children develop secure attachments to their mothers? Whether children are in child care or not, the research consistently shows that the sensitivity of maternal care is most important.[6] In the child care literature, this is a significant confirmation of a core hypothesis of attachment theory. Regardless of whether infants and young children are in care of high or low quality, or have begun care from an early age, have experienced many or few transitions in care arrangements, or are out of the home for extended hours, the security of infant-mother attachment is primarily guided by the sensitivity of maternal care.

When mothers are sensitively responsive, their children are more likely to develop secure attachments. When mothers are insensitive, children are more likely to become insecure, and

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this is when (as Belsky notes[5]) stress from child care arrangements can shift the odds further in the direction of insecurity. When the mother-infant relationship is compromised, children are more likely to become insecure if child care arrangements are poor quality, of long duration, or involve multiple transitions between settings. But these child care processes are not very influential in the context of sensitive maternal care.

Maternal sensitivity and the quality of child care experience are not independent, of course. Mothers are less likely to be sensitive caregivers when they are stressed, and economic and social stressors for the family are often associated with poor quality child care involving turnover in child care providers and long hours out of home. Indeed, the NICHD Study of Early Child Care and Youth Development (SECCYD)[7] found that poorer child care quality and longer child care hours were associated with lower maternal sensitivity. Other results from the NICHD SECCYD[8] suggest, furthermore, that high quality child care can buffer the effects of maternal insensitivity. Young children in high quality care settings experience support that they may not find elsewhere, and this might be developmentally most important when infants and young children experience maternal insensitivity and family stress. Unfortunately, in light of the generally poor quality of care in the U.S. and the strong association between the quality of care and its cost, it is difficult for families who need the best care for their children to find it at a manageable price.[9] This is where broader public policy that enhances investments in early childhood development can enable such families to find the quality of care they seek at a cost they can afford.

In general, the effects of child care on children's attachment security are not strong.[10] Compared especially with the effects of maternal care, child care experience does not account for considerable variance in infant-mother attachment. This does not mean that child care is an unimportant influence, especially when its developmental effects are considered in population terms. Rather, it suggests that the influence of child care should be considered not only in a direct, main-effects model, but also in terms of its moderated (sometimes mediated) effects and how child care experience may itself moderate other developmental influences. As noted earlier, for example, the association between child care and child-parent attachment may be affected by the sensitivity of maternal care, the quality of child care, the presence of other stressors in family life, and other influences. In addition, as Belsky notes, this association may be further influenced by broader sociocultural values concerning out-of-home care for very young children, the participation of women in the workforce, the normativity of dual-career families, and the extent to which early child care is perceived as custodial or development-enhancing. In addition,

there is evidence in the findings of the NICHD SECCYD[11] that child care had a moderating effect on the association between maternal sensitivity and the security of attachment: children in lower-quality child care were more strongly affected by the quality of maternal responsiveness than were children in higher-quality care settings. This is consistent with the view that high quality child care can buffer the effects of maternal insensitivity on the security of attachment. These more complex developmental portrayals deserve more consideration in research on the effects of child care experience on child-parent attachment.[12]

Contributing further complexity to the understanding of the effects of child care experience is that young children also develop attachments to their child care providers, with the security of these attachments based on the care provider's sensitivity, and the security of these relationships predicting some of the same developmental outcomes associated with child-mother attachment.[13] This is important because there is increasing evidence that child care settings are stressful for children, especially younger children,[14] a concern that has historically been voiced by pioneers of the growth of child care for infants and toddlers in the United States and Europe.[15] In this context, secure relationships with care providers in the setting, as well as with the mother, may help to buffer stress and contribute to the positive outcomes that are also associated with child care experience.[16]

Finally, it is important to recognize that the security of infant-mother attachment is a multi-determined developmental outcome. One of the reasons that child care experience explains so little variance in the security of attachment is not only that maternal sensitivity is the preeminent determinant but also that, independently of maternal sensitivity, other influences are also important. One study with families in poverty[17] reported, for example, that the effects of economic stresses (such as joblessness or poor education) on the security of attachment were mediated by maternal sensitivity, consistent with the view that family stress heightens insensitive caregiving which, in turn, undermines attachment security. However, emotional stresses (such as domestic violence or substance abuse problems in the family) were another kind of stressful experience directly associated with attachment independently of maternal sensitivity. Controlling for differences in maternal sensitivity, a family climate with high levels of emotional stress was associated with the child's insecurity. Understanding the effects of child care must be considered in the context of the multiple, overlapping, sometimes cascading developmental influences contributing to the development of attachment relationships.

Implications for Development and Policy

In light of these considerations, it is apparent that child care experience is associated with the security of attachment, but its association is most often indirect and small. The influence of child care must be understood in the context of many other developmental influences, family processes, and broader cultural values concerning out of home care. As Belsky[5] concludes, there are probably no inevitable effects of day care on attachment.

But when child care experience is viewed within the broader context of the influences that lead to secure or insecure infant-mother attachment, there are nevertheless important implications for policy. If high quality child care can potentially buffer the effects on infants and young children of insensitive caregiving and family stresses, then efforts to improve the quality of care normatively available to children, especially from difficult family settings, seem warranted. This is especially so in light of the well-established conclusion from this research literature that high quality child care also strengthens cognitive, language, and math skills in young children. The availability of affordable high quality child care is also the best, and most obvious, answer to the question with which Belsky[5] closes: what would children want? Fortunately, with widespread recognition of the importance of early childhood development for later school achievement (fostered by advances in developmental neuroscience and studies of the long-term benefits of high quality early child care), public discourse concerning child care quality is increasingly regarding child care as an important developmental influence warranting public investment.

With respect to developmental research, findings from many large-scale research studies of child care influences are highlighting the complex, multidimensional influences that guide socioemotional and cognitive development in the early years. Understanding child care experience as a network of developmental influences that can buffer or exacerbate other influences in a young child's life is a useful orienting approach to the next generation of research in this field.

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