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Bridges across the intergenerational transmission of attachment gap

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Attachment is transmitted from one generation to the next. Adult attachment has been shown to predict the security or insecurity of children's attachment relationship with their parents. In search for the mechanism of intergenerational transmission of attachment sensitive parenting has been the main focus of research during the past four decades. Meta-analytic work confirmed the role of sensitive parenting, but a large explanatory gap remains to be explained. Parental mentalization has not yet fulfilled its promise as a bridge across the transmission gap. Here we suggest a model of intergenerational transmission that includes context and differential susceptibility, and we argue that the concept of parenting should be broadened to include autonomy support, limit-setting, protective parenting, parental warmth, and repair of mismatches.

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Attachment is the evolutionary rooted, innate bias of any human infant to seek proximity to protective caregivers who serve as a safe base to explore the environment and a safe haven to return to in times of distress, danger, or illness [1]. In the first years after birth this attachment bias is not only crucial for protection against predators and other potentially deadly external dangers but also for thermoregulation and other biobehavioral regulatory processes that enhance survival to procreative age, and thus attachment contributes to the inclusive fitness of the parents [2••].

Protective caregivers, in most cases the biological parents and other biologically related adults or older siblings close to them [3], respond to the attachment behaviors of the offspring by providing protection and food, and by regulating any negative emotions that threaten to overwhelm the children in stressful situations. They bond to their children as a rewarding basis for their costly investment in the children's development into adulthood, with the functional consequence of enhanced inclusive fitness and transmission of their genes into the next generations (Szepsenwol and Simpson, this issue).

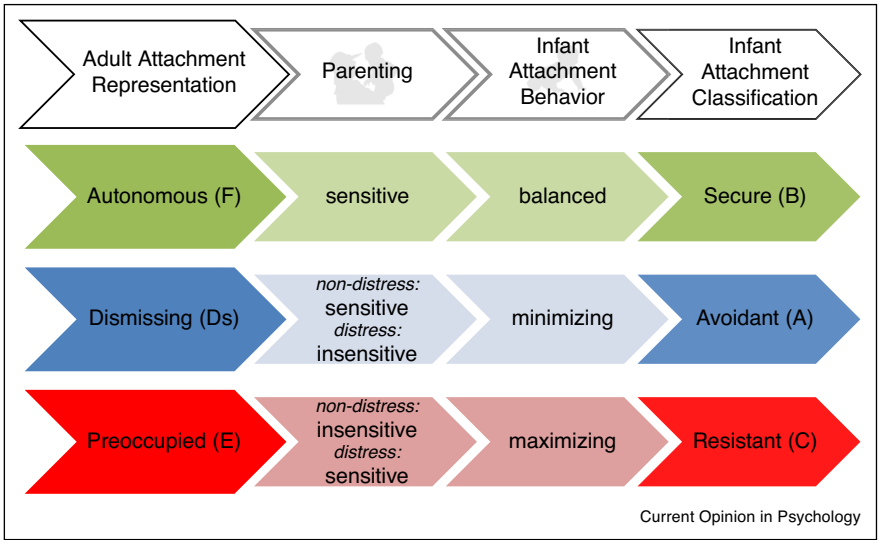
Although every infant is born with the bias to become attached, the environment and in particular the caregivers are critical in shaping individual differences in quality of the attachment relationship. Analogous to children born with the innate capacity to learn a language and are dependent on the environment for learning a specific language, the inborn attachment bias can be canalized in different directions — secure or insecure — dependent on the parents who prepare their children to survive and adapt to a specific bioecological niche [4].

Transmission of attachment: connection of two core hypotheses

A first core hypothesis of attachment theory is the crucial role of parental sensitive responsiveness to infant attachment signals in shaping individual differences in attachment. Parental sensitive responsiveness has been defined as the capacity of caregivers to take notice of the child's attachment signals, to interpret them correctly, and to respond to them promptly and adequately [5]. Correlational as well as experimental studies have documented that more sensitive parents elevate the chance that their child becomes securely attached, meaning that the child strikes a balance between exploration and proximity seeking. The secure child is free to explore the environment and at the same time is ready to seek proximity to the trusted caregiver in times of stress. By contrast, insensitive parents trigger an insecure attachment in their child who remains vigilant and stressed even when the caregiver is nearby [6,7••].

A second core hypothesis of attachment theory is the influence of early attachment experiences on later socio-emotional functioning, which may extend to adult attachment and parenting. Attachment relationships with parents and other attachment figures in childhood and thereafter serve as mental models that shape parents' interactions and attachment relationships with their

Figure 1



Intergenerational transmission of attachment. Hypothetical links between adult attachment representations, parenting behavior in distress and non-distress contexts, infant attachment behavior, and infant attachment classifications.

offspring [8••]. This is the hypothesis of intergenerational transmission of attachment, which states that the current mental representation of childhood attachment experiences, that is, adult attachment, influences their child's attachment relationship with them. Note that the mental representation of attachment need not coincide with actual attachment experiences during childhood — there is a crucial move to the level of representation.

Move from child attachment behavior to adult attachment representation

This move to the level of representation is operationalized by Main and colleagues in an interview to assess the current representation of attachment in adults, the Adult Attachment Interview (AAI) [8••]. Whereas infant attachment behavior can readily be observed in a mildly stressful setting such as the Strange Situation Procedure, a separation–reunion procedure that elicits infant attachment behavior [9], adult attachment can be derived from the adults' narrative during the hour-long AAI that asks for general descriptors of attachment experiences and concrete episodic memories illustrating these descriptors.

The AAI coding system presents coherence of the autobiographical narrative as the essential characteristic differentiating adults with secure versus insecure representations of attachment. Unique to this interview is that it does not rely on the content of autobiographical retrospection but on the formal features of the narrative, in particular linguistic coherence. Regardless of specific childhood events or experiences, security or insecurity of adult attachment representations is derived from the coherence of the verbatim transcribed narrative [10••].

Psychometric studies have shown that the AAI indeed is independent of non-attachment related autobiographical memory, verbal IQ, and SES [11]. It should be noted that this is specific to adult attachment representations and not attachment styles [12], and that for the sake of conciseness we do not discuss the AAI in relation to loss or other potentially traumatic events [10••,13].

Transmission of attachment through sensitive parenting

Combining the two core hypotheses we arrive at the basic model for intergenerational transmission of attachment that has been studied intensively in the past four decades. Adult attachment predicts child attachment, or more specifically: coherence of the parental narrative about attachment experiences predicts the child's balance between exploration and proximity seeking. Parents with an angry, preoccupied perspective on the way they were treated by their parents elevate the chance that their child develops an insecure-resistant attachment, whereas parents who dismiss the impact or memory of negative attachment experiences unwillingly stimulate an insecure-avoidant attachment in their child. Resistant children maximize their attachment behavior at the cost of exploration, avoidant children minimize the expression of their attachment needs.

Parental sensitive responsiveness to child signals is hypothesized to mediate the association between adult and child attachment (see Figure 1). Preoccupied parents tend to show inconsistently sensitive responses: they are insensitive to low-intensity attachment signals of their child but are usually sensitive to high-intensity signals

such as crying. By contrast, insecure-dismissing parents are supportive of their child in stress-free conditions but disconnect when the child shows signs of discomfort and distress, questioning the parental capacity to deal with the child's negative emotions [14,15].

The intergenerational transmission gap

Almost 25 years ago the intergenerational transmission gap was introduced [16,17]. This gap points to the unexplained transmission of attachment: Despite strong meta-analytic evidence for the association between adult and child attachment [16], and similarly robust meta-analytic evidence for the causal role of parental sensitive responsiveness in shaping child attachment security [6] parental sensitivity only partially mediates the relation between adult and child attachment. In a meta-analytic path model on $N = 854$ parent–child dyads, about 75% of the association between adult attachment and child attachment was left unexplained by sensitive parenting: the transmission gap.

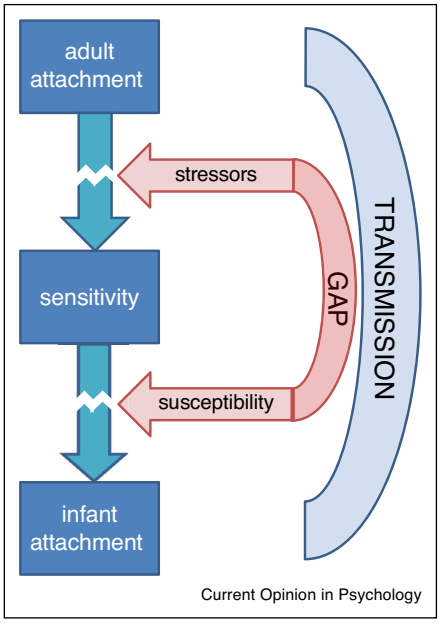
The most recent meta-analytic replication on $N = 4819$ dyads showed a smaller but still substantial transmission gap of somewhat less than 50% [18••]. After more than four decades of research and almost 100 attachment studies we still are in the dark about the mechanism of the transmission of attachment across generations. The recent meta-analysis offers some clues where to look for other mechanisms than parental sensitivity or for moderators pointing at conditions in which the transmission is marginal or even absent.

Moderators of the intergenerational transmission gap

Moderators point to conditions in which intergenerational transmission of attachment is stronger, or, on the opposite, hampered or blocked (see Figure 2). In families at risk, for example, because of teenage motherhood, intergenerational transmission of attachment was absent, and the mediation model of the transmission gap appeared to be obsolete. In such circumstances, adult attachment of caregivers seems to lose its power to predict child attachment, and other mechanisms take over, such as the influence of active grandparents [19]. Cumulative adversities can interfere with the parent's sensitivity competence to be translated into actual performance (see Figure 2). In the communal kibbutzim, with collective sleeping arrangements outside the family home for infants within a few months after birth, secure parents did not establish secure attachment relationships with their infants because of 'contextual neglect', that is lack of interaction time and unavailability when their infants were distressed during the night in the first few years of life [20].

Intergenerational transmission of attachment does also not occur when parents who as adults talk about their

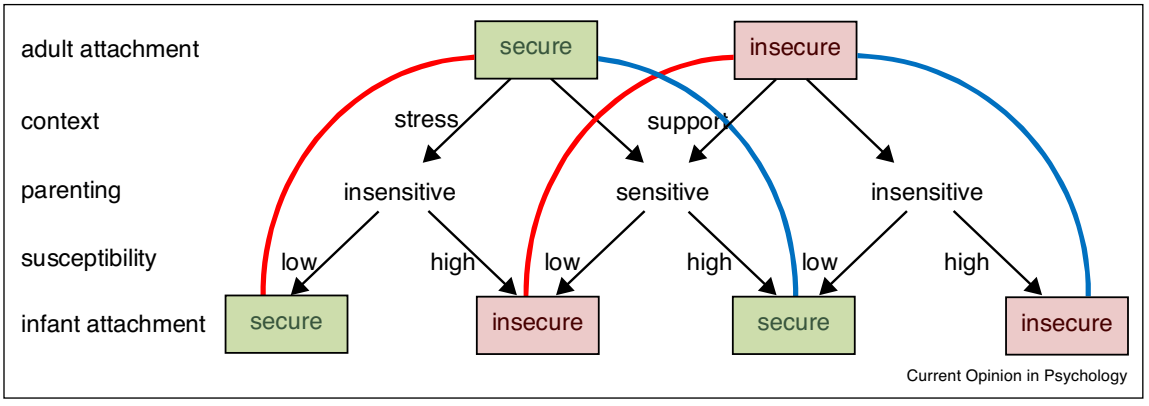
Figure 2



Transmission of attachment and transmission gap. Intergenerational transmission of attachment, mediated by parenting sensitivity. Mediation by parenting sensitivity decreases — accompanied by an increase of the transmission gap — as a result of (1) variation in environmental stressors moderating the association between adult attachment and parenting sensitivity, and (2) variation in infant susceptibility moderating the association between parenting sensitivity and infant attachment.

childhood attachment experiences in an incoherent manner and are insensitive caregivers have secure children because differential susceptibility to the environment serves as a moderator (see Figure 2). Belsky [21] was the first to emphasize differential susceptibility of children to parental sensitive responsiveness, speculating that the more difficult, irritable, emotionally negative or reactive children would be most influenced by parenting, whereas easy-going children would be less impressed, for better and for worse [22,23]. In recent years, evidence for the role of difficult temperament as a marker of differential susceptibility has indeed accumulated [24]. Thus, the temperamentally easy-going children of insecure parents may develop into a secure trajectory despite the less than optimal caregiving they receive and despite conclusive evidence that temperament and attachment are not associated [25]. In Figure 3 the various hypothetical pathways have been presented. Secure parents may have secure children even if they experience stresses and adversities triggering insensitive parenting when these children are less susceptible to environmental input. In case of children's high susceptibility secure parents in stressful circumstances (hampering their sensitivity) have an increased risk for insecure child–parent attachment. Insecure parents might show sensitive parenting when they are adequately supported,

Figure 3



Parenting, context, and differential susceptibility in the transmission of secure and insecure attachment. Intergenerational transmission of attachment, taking into account environmental context and infant differential susceptibility. Blue lines represent intergenerational transmission mediated by parenting sensitivity. Red lines represent intergenerational transmission not mediated by parenting sensitivity, indicating a transmission gap.

for example through their social network or with parenting interventions, and if their children are highly susceptible they may develop a secure attachment; when the children however are less susceptible they may be insecure or secure but independent of parenting quality.

If child secure or insecure attachment were genetically determined, genetic make-up could against the odds override the environmental influence of an insecure or secure caregiver and lead to a secure or insecure attachment. The meta-analytic finding that biological relatedness of child–caregiver dyads moderates the intergenerational transmission of attachment seems to leave some room for this speculation, as the transmission appeared to be only present in genetically related pairs [18••]. However, direct evidence for genetically determined child attachment differences is scarce [26].

Mentalization bridging the gap?

The transmission gap is the consequence of strong evidence for intergenerational transmission of attachment, that is, from adult attachment to the child–parent attachment relationship. The Adult Attachment Interview predicts child behavior in the Strange Situation Procedure, even when the AAI is conducted prenatally and the SSP a year after birth [27]. But insight into the mechanisms of the transmission is incomplete, as evidence for the simplest transmission model with parental sensitivity as the only mediator between adult and child attachment documents [28••]. A wide transmission gap remains, even after almost 100 studies and thousands of participating families.

A large literature addresses the puzzle of the transmission gap by focusing on 'parental mentalization' defined as 'the degree to which parents show frequent, coherent, or appropriate appreciation of their infants' internal states'. Mentalization has three components: parental mind-mindedness, parental insightfulness, and parental reflective functioning [29]. Parental mentalization is usually assessed in an interview with the parent about the child's thoughts and feelings (with the exception of few observational mind-mindedness studies of parent–infant dyads), and high mentalization points at the capacity to describe the world from the child's perspective.

Parental mentalization is therefore not a dimension or feature of parenting behavior but a mental or cognitive capacity that might be expressed in parental behavior to the child. It is only parental behavior that is visible to the child. Children are unable — like us all — to observe what is going on in the mind of the parent, or in their brain for that matter, at least not without imaging techniques. A meta-analysis shows that both mentalization and sensitivity explain parts of the variance in child attachment security [29]. Because adult attachment was not included the findings cannot be helpful in bridging the transmission gap. Mentalization could perhaps be considered a proxy of adult attachment; meta-analytically it explained 9% of the variance in child attachment security. The indirect pathway of mentalization via sensitivity to attachment explained less than 1% of the variance in child attachment [29], thus a transmission gap of 89% (8/9) remains.

Promising building bricks for bridging the gap

Complementing the current components of the intergenerational transmission of attachment model seems most promising to bridge the transmission gap. First, we might look for mental representations of parents evolving from adult attachment but closer to their parenting practices. Parental mentalization of the child's thoughts and feelings is a plausible candidate for narrowing the gap with

child attachment, although the recent meta-analytic data do not seem promising in this regard. Adaptation of the Secure Base Script Knowledge (SBKS) to the AAI transcripts might be another, more reliable way to go forward (see also Waters and Roisman, this issue).

Second, we may broaden our perspective on attachment-relevant parenting. Plausible candidates beyond parental sensitivity would be autonomy support [30], limit setting [31], protective parenting [32], entropy [33], synchrony [34••] and repair of mismatches [35] in parent–child interactions. A special emphasis on stressful and distressing situations for children [15] as well as for parents [36] might create a more informative window on attachment-related parenting as attachment is especially operational in situations that are difficult for the child to cope with on its own, and undivided parental attention is needed.

Third, child attachment still is volatile in the first few years of life, as the child's experiences with attachment figures cumulate into a more or less fixed but still 'working model' of attachment [1]. This points to the urgent need to observe child attachment at several time-points, in a variety of settings, and during longer stretches of time [30]. Ambulatory assessments become more reliable and easy to use [37] and provide detailed observations of the environment, parent–child interactions and child neurobiological parameters relevant for building the bridge between adult and child attachment.

Conflict of interest statement

Nothing declared.

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