Attachment in middle childhood: An evolutionary-developmental perspective

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Attachment in Middle Childhood

An Evolutionary–Developmental Perspective

Marco Del Giudice

Abstract

Middle childhood is a key transitional stage in the development of attachment processes and representations. Here I discuss the middle childhood transition from an evolutionary-developmental perspective and show how this approach offers fresh insight into the function and organization of attachment in this life stage. I begin by presenting an integrated biological model of middle childhood and discussing the neurobiological mechanisms that support the middle childhood transition. I examine the potential role of adrenal androgens, focusing on their activational effects in interaction with early exposure to sex hormones. I then discuss three insights arising from the integrated model and apply them to the development of attachment in middle childhood. I consider the changing functions of attachment in light of social competition, the emergence of sex differences in attachment, and the model's implications for the genetics of attachment in middle childhood.

In the long arc of attachment from the cradle to the grave, middle childhood stands out as a phase of change and transformation. It is the time when attachment relationships undergo a decisive shift toward mutual co-regulation, multiple working models start to get integrated into general representations, and affectional bonds with caregivers and family members lose their exclusive nature as children begin to form close relationships with same-aged peers (Kerns, 2008; Mayseless, 2005).

Despite the importance of these developmental transitions, understanding the nature and functioning of attachment in middle childhood has proven a difficult, elusive task. While the methodological challenges of research in this age

group have undoubtedly played a part (Kerns, 2008; Kerns, Schlegelmilch, Morgan, & Abraham, 2005), I believe there is also a deeper theoretical reason. Since its inception, attachment theory has been rooted in a sophisticated model of the evolved functions of infancy, centered on the dynamic balance between the need for protection and those for learning and exploration. Likewise, extensions of attachment theory to adolescence and adulthood have benefited from a well-developed understanding of the biological and motivational processes associated with sexual maturation and the beginning of mating, pair bonding, and reproduction. However, a comparable functional model of middle childhood has been lacking until very recently, leaving a gap in the theory's foundations and preventing the emergence of a true life span perspective on attachment development.

Fortunately, things are changing fast. In the last two decades, our understanding of middle childhood has been revolutionized by converging theories and findings from anthropology, evolutionary psychology, primatology, endocrinology, and behavior genetics. I recently showed how this body of work can be synthesized to yield an integrated, evolutionary-developmental model of middle childhood (Del Giudice, 2014). My goal in this article is to reconsider the role of attachment in middle childhood from an evolutionary-developmental perspective, using insights from the integrated model to make sense of existing findings and suggest directions for advancement. In particular, I argue that social competition in middle childhood contributes to explain developmental change in attachment styles; that sexual selection (i.e., selection arising from mate choice and competition for mates) explains the evolution of sex differences in attachment and their emergence in middle childhood; and that an evolutionary-developmental perspective helps make sense of the genetics of attachment across the life course.

An Integrated Model of Middle Childhood

The Nature of Middle Childhood

Middle childhood is one of the main stages of human development, roughly corresponding to what is called juvenility in other primates. While juveniles are still sexually immature, they are no longer strictly dependent on parents for survival. The beginning of middle childhood in humans is marked by the onset of androgen secretion by the adrenal glands (adrenarche) in both sexes around 6 to 8 years of age (Bogin, 1997). By age 6, the brain has almost reached its maximum size, and receives a decreasing share of the body's glucose after the consumption

peak of early childhood (Kuzawa et al., 2014). The energy diverted away from brain development is employed to increase muscle mass and deposited as fat in preparation for sexual maturity (the adiposity rebound; Hochberg, 2008; see Figure 2.1). Whereas brain growth slows down in middle childhood, brain development is still well under way, with fast-paced synaptogenesis in cortical areas (gray matter) and rapid maturation of axonal connections (white matter; see Giedd & Rapoport, 2010; Figure 2.1). In primates and other mammals, juvenility is a phase of intensive social learning—often accomplished through play—in which youngsters practice adult patterns of behavior and acquire essential social and foraging skills (Joffe, 1997; Walker, Burger, Wagner, & von Rueden, 2006). In humans, middle childhood is marked by a global reorganization of cognitive functioning known as the 5-to-7 shift (Weisner, 1996), with a simultaneous and striking increase in perceptual abilities, motor control, memory, complex reasoning skills, self-regulation, mentalizing, and moral reasoning (reviewed in Del Giudice, 2014).

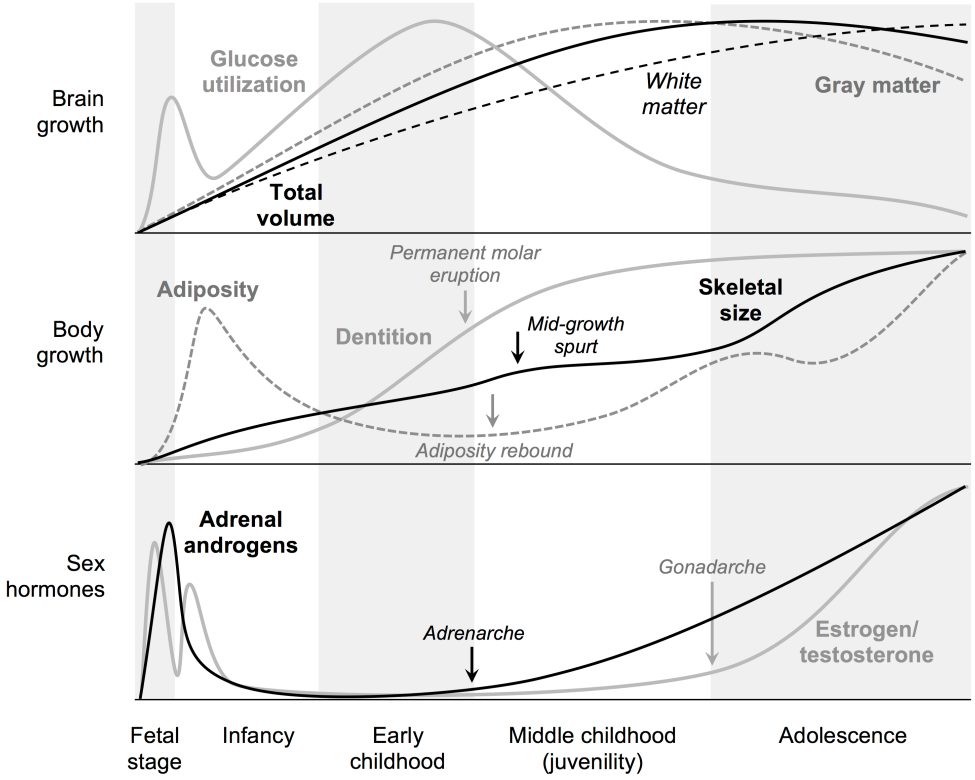

Figure 2.1. Developmental trajectories of human growth and sex hormones production, from conception to adolescence. Arrows show the landmark events that characterize middle childhood.

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Cross-culturally, middle childhood is the time when children are expected to start providing active help in domestic tasks—taking care of younger siblings, collecting food and water, tending animals, and so forth (Bogin, 1997; Lancy & Grove, 2011; Weisner, 1996). In favorable ecologies where food can be gathered with little risk and no need for sophisticated skills, juveniles can make a substantial contribution to family subsistence (Kramer, 2011). Cross-culturally, the transition to middle childhood is typically associated with a strong separation in gender roles; even in societies where tasks are not rigidly assigned by sex, middle childhood is marked by a peak in spontaneous sex segregation and sexually differentiated play (see Del Giudice, Angeleri, & Manera, 2009). At a broader social level, cross-cultural evidence shows that juveniles start "getting noticed" by adults—that is, they begin to be viewed as persons with their own individuality and social responsibility (Lancy & Grove, 2011). In total, two major interlocking functions of middle childhood are *social learning* and *social integration* in a system of roles, norms, activities, and shared knowledge.

Adrenarche and Adrenal Androgens

Around 6 to 8 years of age—with much individual variation and only minor differences between the sexes—adrenal glands begin to secrete increasing amounts of androgens, mainly dehydroepiandrosterone (DHEA) and dehydroepiandrosterone sulfate (DHEAS; Auchus & Rainey, 2004; Hochberg, 2008). Adrenal androgens have comparatively minor influences on physical development but powerful effects on brain functioning. DHEAS promotes neurogenesis and modulates glutamate and GABA (gamma-aminobutyric acid) receptors, the main mediators of neural excitation and inhibition in the brain; moreover, DHEA can directly act on androgen and estrogen receptors. Even more important, adrenal androgens can be converted to more potent sex hormones, such as testosterone and estrogen, in the brain. (See Campbell, 2006; Del Giudice et al., 2009.) As sex hormones, adrenal androgens play a twofold role (Figure 2.1): They *activate* sexually differentiated brain pathways that have been previously organized by the hormonal surges of prenatal development and infancy (e.g., brain networks that regulate aggression and sexual attraction), and they further *organize* brain development along sexually differentiated trajectories (Del Giudice et al., 2009). Moreover, adrenal androgens promote extended brain plasticity through synaptogenesis and may play an important role in shifting the allocation of the body's energetic resources away from brain development and toward the accumulation of muscle and fat (Campbell, 2006, 2011).

Adrenal androgens likely provide a major impulse for the psychological changes seen in middle childhood, including the emergence and intensification of sex differences in aggression, social play (including play fighting versus play parenting), and risk for psychopathology (Campbell, 2011; Del Giudice et al., 2009). Thanks to adrenarche—a feature shared with chimpanzees and, to some extent, gorillas (Bernstein, Sterner, & Wildman, 2012)—human development shows a peculiar pattern in which sexually differentiated brain pathways are activated several years before the development of secondary sexual characters. The resulting (temporary) decoupling between physical and behavioral development reinforces the idea of middle childhood as a sexually differentiated phase of social learning and experimentation (Geary, 2010).

The Transition to Middle Childhood as a Developmental Switch Point

In a broader evolutionary perspective, adrenarche can be reframed as a *developmental switch* (Del Giudice et al., 2009). A developmental switch (West-Eberhard, 2003) is a regulatory mechanism that activates at a specific point in development, collects input from the external environment and/or the state of the organism, and modulates the individual's developmental trajectory—ultimately resulting in the development of different *phenotypes* (morphological, physiological, and/or behavioral traits of an organism). For example, a switch may regulate the development of aggressive behavior so that safe conditions entrain the development of low levels of aggression, whereas threatening environments trigger high levels of aggression. Developmental switches enable *adaptive plasticity*—the ability of an organism to match its phenotype to the local environment in a way that promotes biological fitness (West-Eberhard, 2003). Plastic organisms track the state of the environment—usually through indirect cues—and use this information to develop alternative phenotypes that tend to promote survival and reproduction under different conditions.

An important aspect of developmental switches is that they integrate variation in the environment with individual differences in the genes that regulate the switches. For example, different individuals may have genetically different thresholds for switching between aggressive and nonaggressive phenotypes. This is known in the developmental literature as differential susceptibility to the environment (Belsky & Pluess, 2009). As well, the embodied effects of past experiences and conditions—for example, previous exposure to stress or nutritional scarcity—may modulate the functioning of a switch, allowing the organism to integrate information over time. In many cases, the effects of past experience on developmental switches may be mediated by epigenetic

mechanisms (i.e., biochemical mechanisms that cause long-term changes in the expression of a gene without modifying its DNA sequence; see Meaney, 2010).

The concept of a developmental switch point resembles that of a *sensitive period*, in that the organism is maximally responsive to a specific environmental input. But there is a crucial difference: Since genetic and environmental inputs converge in the regulatory mechanism, a developmental switch amplifies both environmental *and* genetic effects on the phenotype (West-Eberhard, 2003). Indeed, the activation of a developmental switch exposes many potential sources of genetic variation, including genes involved in the regulatory mechanism and in the expression of the new phenotypes (see Del Giudice, 2014; Del Giudice et al., 2009).

My colleagues and I (Del Giudice et al., 2009; Del Giudice & Belsky, 2011) argued that the transition to middle childhood is a switch point in the development of *life history strategies*. Life history strategies are coordinate suites of morphological, physiological, and behavioral traits that determine how organisms allocate their resources to key biological activities, such as growth, reproduction, mating, and parenting. At the level of behavior, individual differences in life history strategy are reflected in patterns of self-regulation, aggression, cooperation and prosociality, sexuality, and others. (See Del Giudice et al., 2009; Del Giudice, Ellis, & Shirtcliff, 2011; Del Giudice, Gangestad, & Kaplan, in press; Ellis, Figueredo, Brumbach, & Schlomer, 2009)

While life history strategies are partly heritable, they also show a degree of plasticity in response to the quality of the environment, including the level of danger and unpredictability—embodied in the experience of early stress—and the availability of adequate nutritional resources. In a nutshell, environments that are dangerous and unpredictable (e.g., because of disease risk, violence, or social instability) tend to favor "fast" strategies characterized by early maturation and reproduction, sexual promiscuity, relationship instability, impulsivity, risk taking, aggression, and exploitative tendencies. In contrast, safe and predictable environment tend to entrain "slow" strategies characterized by late maturation and reproduction, stable relationships, high self-control, risk aversion, and prosociality. (Note that individual differences in life history reflect a continuum of faster to slower strategies rather than a rigid dichotomy between "fast" and "slow" types). Slow strategies are also favored by nutritional scarcity in absence of high levels of danger. (For a more detailed treatment, see Del Giudice et al., in press; Ellis, Figueredo, Brumbach, & Schlomer, 2009.)

In this framework, adrenarche coordinates the expression of life history strategies by integrating individual genetic variation with information about the child's social and physical environment collected throughout infancy and early childhood. Adrenal androgens likely interact with the stress response system in this process. The stress response system—which includes the hypothalamic-

pituitary-adrenal (HPA) axis as well as the sympathetic and parasympathetic autonomic branches—plays a major role in gathering and storing information about environmental safety, predictability, and resource availability. Adrenarche contributes to translate that information into adaptive, sexually differentiated patterns of behavior (Del Giudice et al., 2011). Consistent with this view, both early relational stress and early nutrition modulate the timing of adrenarche (Ellis & Essex, 2007; Hochberg, 2008). It is no coincidence that the first sexual and romantic attractions typically develop in middle childhood, at the same time when the frequency of sexual play increases dramatically (Bancroft, 2003; Herdt & McClintock, 2000).

By interacting with peers and adults, juveniles receive considerable feedback about the effectiveness of their nascent behavioral strategies. The information collected during middle childhood feeds into the next developmental switch point, that of gonadarche (the awakening of the testes/ovaries; see Ellis, 2013); the transition to adolescence offers a major opportunity to adjust or revise one's initial strategy before attaining full reproductive maturity (Del Giudice & Belsky, 2011).

Three Insights

The evolutionary-developmental model of middle childhood described in this section is outlined in Figure 2.2. Three important insights flow from the model's logic (Del Giudice, 2014). The first is that *social integration and social competition are complementary functions of middle childhood*. While evolutionary accounts of juvenility typically focus on learning, helping, and other forms of social integration, a life history approach emphasizes the need to consider social competition as well. In the peer group, children compete for vital social resources—status, reputation, allies, and friends. In fact, the social position achieved in middle childhood is a springboard for adolescence and adulthood; popularity and centrality within the peer network put a child at a considerable advantage, with potentially large effects on his or her ultimate reproductive success and, hence, biological fitness (Del Giudice et al., 2009).

Physical and relational aggression are obvious tactics for gaining influence, but social competition in the more general sense also occurs through prosocial behaviors, such as forming alliances, doing favors, displaying valuable skills, and others (Hawley, 2014). The centrality of social competition in middle childhood is reflected in the developmental trajectory of self-esteem: Whereas young children tend to report high levels of self-esteem with little individual variation, at around 7 to 8 years, many children experience a drop in self-esteem. As a result, middle childhood witnesses the emergence of substantial individual differences in self-evaluation that often persist through adolescence (Harter, 2006).

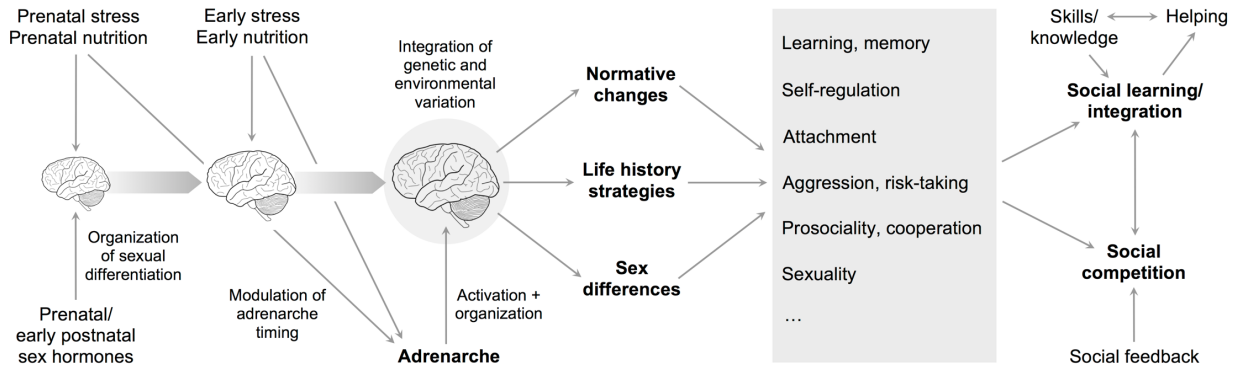

Figure 2.2. An integrated evolutionary-developmental model of middle childhood.

Source: Reproduced with permission from Del Giudice (2014).

The second insight is that *sexual selection contributes to the emergence and intensification of sex differences in middle childhood*. By determining children's initial place in social networks and hierarchies, competition in middle childhood indirectly affects their future ability to attract sexual and romantic partners. For this reason, middle childhood is a likely target for sexual selection: Behavioral traits that increase competitive ability in middle childhood can be expected to spread in human populations because they indirectly increase an individual's success in mating and reproduction. Sexual selection is an important (if often overlooked) explanation for the emergence and intensification of sex differences in middle childhood. A prime example are sex differences in physical aggression, which increase at the beginning of middle childhood in tandem with sex differences in muscularity (which begin to appear in middle childhood), sex differences in play fighting (which peak in middle childhood), and sex differences in the onset of externalizing disorders (Del Giudice et al., 2009).

Finally, the role of adrenarche as a developmental switch implies that *in middle childhood, heightened sensitivity to the environment goes hand in hand with the expression of new genetic factors.* When adrenal androgens begin to rise during the transition to middle childhood, they activate a multiplicity of hormone-sensitive brain pathways that have remained dormant since infancy. In doing so, they release a certain amount of previously "hidden" genetic variation (Del Giudice et al., 2009). Thus, middle childhood should be characterized by a mixture of heightened sensitivity to the environment and expression of new genetic factors. Consistent with this prediction, twin studies have shown that the transition to

middle childhood coincides with the onset of new genetic influences on prosocial and aggressive behaviors, intelligence, and verbal skills (reviewed in Del Giudice, 2014).

Implications for Attachment Theory

Social Competition and the Changing Functions of Attachment

Current views of attachment in middle childhood emphasize its role in fostering social integration. For example, Mayseless (2005) argued that a key evolutionary function of middle childhood is to start using peers as alternative attachment figures, thus initiating the shift from exclusive attachment to caregivers in infancy and early childhood to investment in peer relationships in adolescence and adulthood. However, peers are not just affiliation and cooperation partners but also competitors for social status and rewards. This dual role of peers can be expected to shape the functions of attachment in middle childhood and beyond.

The first implication of this expanded view is that attachment styles influence children's competitive strategies, both directly and indirectly. For example, anxious (preoccupied, ambivalent) styles may sensitize children to the possibility that their social partners will betray or exclude them and prompt a range of potentially effective countermeasures, including exaggerated displays of distress, requests for emotional and physical closeness, and relational aggression against potential "cheaters." In contrast, avoidant attachment may reduce a child's reliance on undependable partners and project an image of strength and independence that can be an asset in many social contexts. As relationships with peers take center stage, attachment styles should become less tailored to the characteristics of the child's caregivers and more attuned to the costs and benefits of different behaviors in the broader social environment. And since boys and girls differ systematically in their strategies of affiliation and competition (Benenson, 2014; Geary, 2010), it is reasonable to predict that attachment styles will become sexually differentiated starting from middle childhood (more on this in the section Sexual Selection and the Emergence of Sex Differences in Attachment).

A related implication is that attachment in middle childhood should not be viewed only as a *predictor* of social variables such as aggression, prosociality, or externalizing and internalizing behaviors. Rather, attachment can be understood as one element in a suite of life history–related traits whose coordinated expression serves the biological goals of the child in his or her particular environment (Figure 2.2; see Simpson & Belsky, 2008). Early attachment relationships play a key role

in shaping an individual's developmental trajectory; in a life history perspective, this is partly because they convey vital information about the safety and predictability of the environment (as well as the individual's value in the eyes of significant others). In other words, attachment provides critical "input" to the systems that mediate life history development; as children grow up, however, attachment styles become influenced by the "output" of the same systems. While attachment security is moderately stable across development (e.g., Pinquart, Feußner, & Ahnert, 2013), specific attachment styles, such as avoidance and ambivalence, are much more subject to change (see Del Giudice, 2009). The longitudinal instability of attachment styles may be explained—at least in part—by the changing biological functions of attachment over the life course.

The correlates of insecure attachment in middle childhood include externalizing and other so-called pseudomature behaviors (Allen, Schad, Oudekerk, & Chango, 2014), such as precocious sexual and romantic engagement (Kerns, 2008; Sroufe, Bennett, Englund, Urban, & Shulman, 1993), as well as coercive tactics of social influence (Chen & Chang, 2012). A life history perspective suggests that these behaviors may reflect adaptive strategies tailored to harsh and/or unpredictable environments—strategies that necessarily entail a mixture of benefits and costs. The fact that immediate benefits, such as peer popularity and earlier access to sexual partners, tend to be short-lived compared with the lasting social and health costs of the same behaviors (Allen et al., 2014) is fully in line with the present-oriented focus of fast life history strategies. It is important to keep in mind that biological adaptation is ultimately driven by reproductive success; natural selection do not necessarily promote psychological well-being or physical health and may even sacrifice survival in exchange for enhanced reproduction. Moreover, even adaptive developmental processes may result in genuinely maladaptive outcomes for some individuals (Frankenhuis & Del Giudice, 2012). It follows that the existence of psychological, social, or health costs does not automatically qualify a trait or behavior as maladaptive (see Ellis et al., 2012).

Sexual Selection and the Emergence of Sex Differences in Attachment

The general principle that sexual selection contributes to the emergence of sex differences in middle childhood can be extended to attachment styles. As I have argued in previous work (Del Giudice, 2009), the constellations of behaviors associated with different types of insecure attachment are likely to have different costs and benefits for boys and girls. In a nutshell, status and dominance are key reproductive resources for males; avoidant styles should help boys secure status through overt competition—though the risky nature of competition implies that

there will be losers as well as winners (Frankenhuis & Del Giudice, 2012). In adulthood, attachment avoidance *minimizes commitment* in close relationships and supports investment in short-term sexual relationships. Human females face a different set of constraints, so that successful reproduction primarily requires securing sufficient material and social resources (e.g., a supportive network of relatives and friends). Anxious attachment emphasizes neediness and vulnerability and is characterized by constant preoccupation about the availability and commitment of one's partner. For these reasons, anxiety contributes to *maximize investment* of time and resources by relatives and partners—especially if the latter tend to be unreliable or uncommitted. Biological reasoning further suggests that sex differences should be small in safe and protected environments, increase at higher levels of stress, then decrease again in severely dangerous or unpredictable contexts. (See Del Giudice, 2009, for details.)

Studies of attachment in middle childhood that employ questionnaire measures systematically detect higher avoidance in boys and higher preoccupation in girls across cultures (Chen & Chang, 2012; Del Giudice, 2009). The same pattern is often observed in doll-play tasks, whereas interviews usually fail to reveal any significant sex differences (Bakermans-Kranenburg & van IJzendoorn, 2009; Del Giudice, 2009; Kerns, Brumariu, & Seibert, 2011; Toth, Lakatos, & Gervai, 2013; Venta, Shmueli-Goetz, & Sharp, 2014). Taken together, these findings mirror those from studies of adult attachment. Meta-analytic evidence from romantic attachment questionnaires shows that men score higher than women in avoidance, whereas women are higher in anxiety (Del Giudice, 2011). When attachment state of mind is coded in discrete categories from the Adult Attachment Interview (AAI), no sex differences can be detected (Bakermans-Kranenburg & van IJzendoorn, 2010). However, a recent study found that dimensional scores derived from the AAI reliably show significantly higher dismissiveness in men and higher preoccupation in women (Haydon, Roisman, Owen, Booth-LaForce, & Cox, 2014).

I recently showed that sex differences in romantic attachment become larger and more robust when the broad dimensions of avoidance and anxiety are split into narrower components or facets). Specifically, men score higher than women in *self-reliance*, whereas women score higher in *preoccupation* and *neediness*. These facets can be interpreted in an evolutionary perspective as strategies for minimizing commitment (self-reliance) and maximizing investment (preoccupation and neediness). The remaining two facets (labeled *discomfort with closeness* and *rejected desire for closeness*) do not have a straightforward interpretation in a life history framework and show a pattern of attenuated or reversed sex differences.

This move to the level of facets has promising implications for the study of attachment styles in middle childhood. As in adults, the size of sex differences

may vary between facets of anxiety and avoidance, and assessment tools may differ in the balance of facets they tap. Also, a focus on facets might contribute to explain the modest concordance between attachment ratings obtained by different methods (e.g., questionnaires versus doll play; Kerns et al., 2011) and help identify the dimensions of variation that show the highest consistency across methods.

At the neurobiological level, adrenarche is likely to play a crucial role in the emergence of sex differences in attachment. In particular, I hypothesized that the activational effects of adrenal androgens would interact with the organizational effects of prenatal sex hormones to determine both individual and sex differences in attachment styles (Del Giudice, 2009). A recent study provided initial empirical support for this hypothesis (Del Giudice & Angeleri, under review). In a sample of 285 Italian children aged 8 to 11 years, avoidant and preoccupied attachment styles were assessed with the Coping Styles Questionnaires (CSQ; Finnegan, Hodges, & Perry, 1996). Early exposure to sex hormones was indirectly assessed with an anatomical marker, the ratio of the length of the second and fourth finger of the right hand (2D:4D digit ratio). The digit ratio is a biomarker of the balance between testosterone and estrogen during fetal development (Manning, Kiduff, Cook, Crewther, & Fink, 2014; Ventura, Gomes, Pita, Neto, & Taylor, 2013). As expected, girls scored lower in avoidance and higher in preoccupation than boys; moreover, digit ratio was significantly associated with attachment scores within each sex, so that "feminized" digit ratios predicted lower avoidance and higher preoccupation in both boys and girls.

These findings provide the first demonstration of a link between prenatal exposure to sex hormones and sexually differentiated attachment styles in middle childhood. Future studies should integrate indicators of early exposure with direct measures of adrenal androgens in childhood. Another promising research topic is the association between adrenarche timing and individual trajectories in attachment styles from early to middle childhood.

Genetics of Attachment in Middle Childhood

Viewing the transition of middle childhood as a developmental switch point has intriguing implications for the genetics of attachment. In contrast with most psychological traits, individual differences in attachment styles in infancy and early childhood are heavily determined by children's environment and show little evidence of genetic effects (Bokhorst et al., 2003; O'Connor & Croft, 2001; Roisman & Fraley, 2008). While these findings leave some room for genotype-by-environment interactions (whereby children with different genotypes respond differently to the same environmental factors), the direct effect of genetic similarity in early life seems to be weak to negligible. The picture, however,

changes dramatically in adolescence and adulthood: Both questionnaire and interview measures of adult attachment show a substantial role of genetic factors, with about 40% of individual variation explained by genetic similarity (Brussoni, Jang, Livesley, & Macbeth, 2000; Fearon, Shmueli-Goetz, Viding, Fonagy, & Plomin, 2014; Picardi, Fagnani, Nisticò, & Stazi, 2011; Torgersen, Grova, & Sommerstad, 2007).

In light of the theory and evidence presented here, the transition to middle childhood is likely to be the phase of development in which new genetic factors begin to significantly influence attachment styles. Also, the idea that sex hormones are implicated in the origin of both sex and individual differences in attachment styles in middle childhood suggests that future genetic research should target genes involved in sex hormones pathways (e.g., the genes that code for androgen and estrogen receptors) in addition to the standard candidate genes associated with oxytocin, dopamine, and serotonin pathways.

Conclusion

In this article I showed how an evolutionary-developmental perspective can enrich current theoretical models of attachment in middle childhood and inform empirical research by suggesting novel, intriguing hypotheses. However, this discussion of the implications for attachment barely scratches the surface: The evolutionary-developmental approach is making headway in many other relevant areas, including developmental psychopathology (Del Giudice & Ellis, in press), and has much more to offer to mainstream attachment theory. Research on attachment in middle childhood has already made many important contributions, theoretical and empirical. However, I believe that it has not yet realized its full potential and that it will do so only by embracing a biological perspective and rediscovering its deep evolutionary roots.

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