



Moullin, S., Waldfogel, J., & Washbrook, E. (2018). Parent-child attachment as a mechanism of intergenerational (dis)advantage. *Families, Relationships and Societies*, 7(2), 265-284.
<https://doi.org/10.1332/204674317X15071998786492>

Peer reviewed version

Link to published version (if available):
[10.1332/204674317X15071998786492](https://doi.org/10.1332/204674317X15071998786492)

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Parent-Child Attachment as a Mechanism of Intergenerational (Dis)Advantage

1. Introduction

Sociology and economics have recently contributed evidence that childhood socio-emotional skills influence socio-economic outcomes into adulthood. But neither discipline has engaged with the dominant developmental psychological theory of the origins of socio-emotional skills: attachment. Meanwhile however, attachment scholars have had little to say about the socio-economic context in which attachment develops. Through an integrative review of empirical literature on parent-child attachment and skill development, and the antecedents of attachment security, we propose a model that incorporates attachment into an analysis of the intergenerational transmission of (dis)advantages.

Socio-emotional skills in childhood have been associated with attainment in school and in the labour market. In particular, self-regulation and the absence of externalising (conduct) problems predict positive educational and economic outcomes (Heckman et al. 2013; McLeod et al. 2012; Duncan & Magnuson 2011; Turney & McLanahan 2015; Borghans et al. 2008; Moffitt et al. 2011; Currie & Stabile 2006). But what explains young children's differing levels of socio-emotional skills? Prevailing theories focus on parental *investment* of time and money (Bianchi et al. 2004; Coneus et al. 2012), and parental or school *socialisation* through modelling or teaching (Lareau 2003; Coleman 1988). As part of an econometric model of parental investment, Heckman and Mosso (2014, p.726) briefly mention the potential role of parent-child interactions, and attachment, in 'transform[ing] time and goods investments to shape children's

capacities'. But neither the parental investment nor socialization model engages with the emotional, relational aspects of parenting which attachment theory emphasises. This limits our understanding of socio-emotional skill development – and of the mechanisms by which inequalities transmit across generations.

Where policy has sought ways to intervene early in the life course to address disadvantage, it has focused on access to preschool education and educationally orientated school readiness. Where this agenda engages parents, it is principally over the promotion of reading to children, and strategies for managing, rather than preventing, child behaviour problems (Karoly et al. 2005; Lindsay et al. 2011). Early intervention with children still often inadequately addresses parents' needs and context (Chase-Lansdale & Brooks-Gunn 2014). Other than the Family Nurse Partnership, which is designed for adolescent, low-income first-time parents (Olds & Kitzman 1993), less attention has been paid to the period before age three, and to the socio-emotional side of parent-child interaction.

Attachment theory offers a model for how socio-emotional skills develop through the parent-child relationship in the first years of life (Sroufe 2011). In its development by Bowlby, a British psychologist trained in natural science, infants' attachment to their primary caregivers was thought to be evolutionarily adaptive. The stress activated when proximity to the parent was lost or under threat helped the infant to survive. Through observational research with Ainsworth, the idea emerged that attachment also helped children to socially and emotionally thrive.

The concept of a '*secure base*' reconciled the apparent contradiction observed where children who displayed autonomous, self-directed behaviours had strong emotional

attachments to parents as infants. Attachment theory claims that children's early experiences of parents' responses to their needs and distress are internalised. From around six months, the infant is able to anticipate their parents' response when they are distressed, and adapt their behaviour accordingly. When parents have mostly responded to the child in a sensitive way, the child can safely express negative emotion, expect to receive comfort when needed, and explore when not. This secure parental attachment, it is theorised, generalises to other times, settings and people.

Attachment theorists think that this generalization occurs through self-regulatory processes (Drake et al. 2013). Through repeated experiences of parental responses, the child develops an 'internal working model' of social interaction. A secure model provides the child with healthy ways to manage their emotions, and so more opportunities to learn and explore.

From its earliest expositions, attachment was a way of explaining intergenerational continuities in human development. Parents' own attachment styles would shape their parenting, and therefore children's attachment styles. The idea was that "the inheritance of mental health and ill health through family microculture may well be as important, if not far more important, than is genetic inheritance" (Bowlby 1973, p.323). However, focus on the emotional bond between parent and child tends to obscure the social and economic context in which it sits. As a consequence of this, as well as the confusion between attachment theory and the popular advice on "attachment parenting" (Cox 2006), and still-embryonic neuroscientific research (Shonkoff & Garner 2012), attachment gets dismissed by sociologists (Macvarish et al. 2014). Attachment theory, though, engages with the micro-level mechanisms that connect parenting processes, and

socio-emotional factors, to the intergenerational transmission of socio-economic inequality. It can, we argue, be a complementary explanation for the intergenerational transmission of (dis)advantages.

Method, scope and terminology

The idea that parent-child attachment serves as a foundation for child social and emotional development has been under empirical investigation for 50 years. The paper is therefore a review of reviews in that we consider mainly the published meta-analyses: van IJzendoorn 1995; van IJzendoorn, Dijkstra, & Bus, 1995; van IJzendoorn, Wolff and IJzendoorn 1997; Schuengel & Bakermans-Kranenburg, 1999; Lovejoy et al., 2000; Bakermans-Kranenburg, van IJzendoorn & Juffer, 2003; Nievar & Becker 2007; Cyr et al., 2010; Fearon et al., 2010; Groh et al., 2012; Verhage et al., 2016. We supplement these with recent findings, selected from search in PubMed, primarily in the highest ranked relevant journals, in which articles will have been subject to rigorous peer review: *Child Development*, *Development and Psychopathology*, and *Developmental Psychology*. In addition, relevant papers were selected from the specialist journal, and official journal of the Society for Emotion and Attachment Studies and International Attachment Network: *Attachment and Human Development*.

We do not attempt further meta-analysis – there is insufficient commonality between outcomes, samples and ages of observation to do so reliably (Cooper et al. 2009). Our contribution is to integrate analyses of the effects of attachment on child skills (section 2) with those of the antecedents of attachment (section 3).

Studies with relatively small sample sizes are included in the review because (as discussed below) observational measures of attachment are rarely conducted at scale. As in any review, null findings are likely to be underrepresented due to publication bias (Mervis 2014).

Our focus is on the security of attachment to parents, with the recognition that attachments to other figures, including paid caregivers, are also relevant (Howes 1999). Many studies only measure attachment to mothers, maintaining a gendered model of parenting. However, attachments to fathers are similarly made, distributed and associated with child outcomes (Bretherton 2010; Ramchandani et al. 2013; Lamb & Lewis 2010). We therefore use the term *parental* attachment and sensitivity. The rest of this section outlines how attachment is measured and classified.

Measures of attachment

The first method developed by Ainsworth to test attachment theory was the ‘Strange Situation’ (Ainsworth MD, Blehar M, Waters E, Wall S & Ainsworth MD 1978). Advanced in sync with Bowlby’s work, behaviour in the Strange Situation has become almost synonymous with attachment (Bretherton 1992). The Strange Situation is an experimental procedure in which the child is observed playing while the parent and a stranger enter and leave the room in sequence. Four behaviours are coded: (a) separation anxiety, the unease the infant shows when left by the parent (b) the infant’s willingness to explore, (c) stranger anxiety: the infant’s response to the presence of a stranger, and (d) reunion behaviour: the way the parent was greeted on return.

The US National Institute of Child Health and Development (NICHD) launched the Study of Early Child Care and Youth Development (SECCYD) in the early 1990s, conducting 1,200 Strange Situations. Coder agreement over attachment classification was 86 per cent (Friedman & Boyle 2008). The Strange Situation is expensive to administer, so usually conducted only for small samples, or sub-samples of larger surveys.

A second observational measure, the Attachment Q-Sort, is taken over 2-3-hour home visits. Using 90 items, observers sort children's attachment-related behaviour into attachment styles (Waters & Deane 1985). The Toddler Attachment Sort (TAS-45) is a shorter version, derived from clustering of indicators (Spieker et al. 2011; Andreassen & West 2007). Unless otherwise noted, attachment in what follows is measured observationally, by one of these three measures. Parent's attachment styles are measured through the Adult Attachment Interview, a quasi-clinical semi-structured interview asking about an adult's state of mind regarding their attachment in their family of origin (Main & Goldwyn 1994; Crowell & Treboux 1995).

Attachment styles

A child's attachment is classified as one of four styles: secure, avoidant, ambivalent, or disorganized. Children who *avoid* the parent when distressed learn to minimise expressions of negative emotions and needs. This avoidant attachment strategy is thought to be a response to a parent who is consistently rejecting in times of distress. Children who are *ambivalent* towards the parent are wary and hesitant to play, even in their presence, and may resist them. This ambivalent strategy develops when parents are inconsistent in their responses to the child.

The fourth category of attachment, *disorganized*, was introduced in 1990 by Main and others (Main & Solomon 1990). Children with disorganized attachment display particularly frightened behaviour. Disorganized attachment is high in families reported for maltreatment (Cyr et al. 2010), and where parents have suffered loss and major depression (van IJzendoorn et al. 1999).

The distribution of attachment styles by socio-demographic characteristics for the most recent nationally representative study in which it is measured, the United States' Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), is given in Table 1. Measured dichotomously as secure and insecure, attachment style is largely stable into adolescence (Hamilton 2000), and similarly distributed across the two representative studies measuring attachment, the ECLS-B and SECCYD, undertaken a decade apart.

[Table 1 here]

2. Attachment's effects on children's skill development

In this section, we consider evidence for the effects of parent-child attachment on children's self-regulation, externalising and internalising behaviours, executive function, and language. All but the latter two are considered socio-emotional skills. We also note evidence for effect on educational attainment.

Self-regulation

A central hypothesis of attachment theory is that secure attachment to a parent promotes the capacity for emotional and behavioural self-regulation at older ages and in

other settings (Drake et al. 2013). Drake, Belsky and Fearon distinguish teacher-rated social self-control (the ability to respond appropriately to peers in conflict or pressure), effortful control (the ability to pay attention and control impulses) and observed task persistence. Attachment security was moderately, positively associated with social self-control and effortful control, but not with task persistence (Drake et al. 2013). Social self-control was also a pathway connecting attachment with learning engagement at age 10/11.

In a sample of low-income boys, secure attachment and positive maternal control were positively associated with effective strategies for anger control and attention (Gilliom et al. 2002). Murray et al. (2011) found the expected adverse effect of maternal depression on self-regulation at ages 5 and 9 was mediated by the child's prior attachment style.

Externalising behaviours

Socio-emotional health is regularly described in terms of the degree to which negative symptoms or behaviours are externalising (directed toward others) or internalising (directed toward the self). Externalising behaviours include aggression, disruption and defiance. A meta-analytic study of 69 studies found a substantial overall effect of insecure attachment on these externalising behaviours (Fearon et al. 2010). The effects were largest for boys, disorganised attachment, and when behavioural problems were observed by researchers or clinically diagnosed.

Attachment insecurity was a risk factor for externalising behaviours even amongst more middle-class families. However, the association between attachment and

externalising behaviours was smaller in samples of higher socio-economic status families (ibid.). This indicates that the importance of attachment in parent-child transmission may depend on the presence of other advantages.

Attachment appears to protect against the effects of disadvantage on externalising problems. Multiple numbers of social risks (maternal depression, parenting stress, lack of social support, single parenting, lack of maternal psychological support, and ethnic minority status) are associated with behaviour problems at age three – for children with insecure-avoidant attachment (Belsky & Fearon 2002b). For securely attached children, the number of these risks had no association with externalising behaviour (Belsky & Fearon 2002b). Owens & Shaw (2003) similarly found that of boys who experienced poverty in early childhood, those with secure attachments at 18 months were two and a half times as likely as those without to show positive adjustment – a lack of behavioural problems and above average social skills – 5 and a half years later. However, because (as section 2 discusses) poverty, parental stress and mental health are risk-factors for insecure attachment, those who manage to make secure attachments in these circumstances are likely to be a select group.

Internalising behaviours

Internalizing behaviours include withdrawal, eating and sleeping difficulties, and, at high levels, indicate depression and anxiety. Meta-analysis confirms a small but consistent association between attachment security and internalising symptoms in childhood (Groh et al. 2012). Attachment is less predictive of internalising than of externalising behaviours. Yet, it is only when combined with externalising behaviours

that internalising behaviours are associated with educational attainment (McLeod et al. 2012).

Child attachment representations are associated with the risk of experiencing a major depressive episode or chronic depression by age 16 (Murray et al. 2011). Such depression in adolescence increases the likelihood of dropping out of high school, and completing college, compared to a non-depressed sibling (Fletcher 2010).

More general indicators of socio-emotional skills, as rated by teachers and counsellors are also predicted by attachment security. In a study of 250 children born into poverty in 1975 in the US (the Minnesota Longitudinal Study of Risk and Adaptation), securely attached children were rated by teachers and student counsellors as more self-confident and curious (Sroufe et al. 2005). Teacher reports also indicated that securely attached children had better relationships with peers, were more resilient and less likely to be bullied. Children's self-esteem is also strongly associated with attachment (Jacobsen & Hofmann 1997).

Executive Functions

Attachment is not associated with intelligence measured by I.Q. (van IJzendoorn et al. 1995). It is, however, associated with a set of cognitive processes that control behaviour, and predict academic performance, including cognitive flexibility, impulse (inhibitory) control and working memory: executive functions. In a small, 62-family, sample, the sensitivity of mothers' and fathers' interactions with their children and attachment security between age one and two affected cognitive flexibility (but did not affect impulse control) by age three (Bernier et al. 2012). The association with cognitive

flexibility remains when language, family socio-economic status and other aspects of parenting are statistically adjusted for (Bernier et al. 2012). As with many outcomes of interest, much variation in executive functions between individuals is left unexplained by statistical models relying on observed variables. Still, parent interaction and attachment security explained more of the variation in cognitive flexibility (18 per cent) among children in this sample than did parents' socio-economic status and child verbal ability together (8 per cent).

Language

Attachment security predicts children's language development, whether language ability is measured in terms of the length of utterances, comprehension, or expressive language (van IJzendoorn et al. 1995; Thompson 2008). In a 1995 meta-analysis, the average effect size was over half a standard deviation (van IJzendoorn et al. 1995). A more recent study finds avoidant attachment specifically was associated with poorer language skills at age three (Belsky & Fearon 2002b). Further, the detrimental effect of insecure attachment on expressive language was greater with every socio-economic risk factor (Belsky & Fearon 2002a).

Murray and Yingling (2000) find no significant correlation between attachment style and 'HOME' inventory scores that gauge educational stimulation in the home. The effects of attachment and stimulation at home were additive, with children receiving high levels of stimulation at home also benefiting linguistically from secure attachments. Children with more stimulating home environments but insecure attachment had lower

language competence at age 2 than did those in less stimulating home environments but secure attachment (Murray & Yingling 2000).

Educational attainment

The long-term studies that measure attachment show associations between attachment and educational attainment. Most notably, the Minnesota study described above found that the quality of early parenting and attachment, measured at age three and a half, predicted with 77 per cent accuracy whether or not children later graduated high school (Sroufe et al. 2005). Including measures of I.Q. or later test scores did not add to the strength of this prediction. Insecure attachment, combined with measures of parent sensitivity, before age four was a strong predictor of dropping out of high school, second only in magnitude to behaviour problems measured at 12 (Sroufe et al. 2005).

Attachment security, measured through children's representations at age seven, was associated with student school test scores, adjusting for prior academic achievement, I.Q. and socio-demographic factors (Jacobsen & Hofmann 1997). In this Icelandic study, attachment affected attention and participation in school, and these partially mediated the relationship between early attachment and GPA at age 15.

Independently of education, attachment has been linked with occupational attainment. Amongst men with lower educational levels in the English Whitehall II study of British Civil Servants, those who had secure attachment styles were more likely to be in higher grades (Bartley et al. 2007).

[Figure 1 here]

3. Attachment's Antecedents and Parents' Skills

If socio-emotional and some cognitive skills are predicted by attachment security, what predicts attachment security? In this section we review the antecedents of attachment security: parent's own attachment style, and skills: their sensitivity of interaction, socio-emotional health – and their socio-economic circumstances. We also consider the role of genetic heritability, childcare, and child characteristics in attachment.

Intergenerational continuity in attachment style

Attachment security is highly correlated between parents and children. Mothers' and fathers' attachment styles, measured in adulthood, are strongly associated (correlated by up to 0.74) with their children's (Bernier et al. 2014; van IJzendoorn 1995; Verhage et al. 2016). The specific *type* of insecure attachment corresponds less well between parents and children (Shah et al. 2010; van IJzendoorn 1995), with disorganized attachment styles particularly hard to establish (Bernier & Meins 2008). The intergenerational transmission of attachment style is also smaller in higher risk samples (Verhage et al. 2016). The association between mothers' attachment style and her children's has declined across time, while fathers' has remained the same. As a result, mothers and fathers' attachment styles are now similarly associated with their children's (Verhage et al. 2016).

To date, studies have found little evidence for the genetic heritability of attachment security (Roisman & Fraley 2008; Bokhorst et al. 2003; Fearon et al. 2006). One gene was found to moderate the effect of mothers' unresolved trauma or loss on disorganized attachment. However, no gene was found to moderate the effects of mothers' behaviour on disorganized attachment (van IJzendoorn & Bakermans-

Kranenburg 2006). It is thought that parental attachment styles matter primarily because they influence the sensitivity of parents' interaction with their children.

Parent sensitivity

“Sensitivity”, Ainsworth (1974, p.129) wrote, “requires being aware of and correctly interpreting the infant’s signals, and responding appropriately and promptly. A mother also needs to follow through with her responses, such as holding her infant long enough that he is comforted and does not immediately seek to be picked up again after being set down” (cited in Lyons-Ruth et al. 2013).

Indicating that parental sensitivity plays a causal role, short-term interventions to improve maternal sensitivity increased attachment security (Moss et al. 2011; De Falco et al. 2014; Hoffman et al. 2006). In a meta-analysis of 23 randomized interventions with parents and children aiming to increase attachment security, only those that focused on sensitivity had significant effects (Bakermans-Kranenburg et al. 2003). Paternal and maternal sensitivity is similarly associated with child outcomes (Grossmann et al. 2002; Miljkovitch et al. 2012; Bretherton 2010), and interventions that successfully improved attachment security engaged fathers as well as mothers (Bakermans-Kranenburg et al. 2003).

Another way to understand the proximate causes of attachment is to consider cases where attachment styles change over early childhood. Moss et al. (2005) found children whose attachment classification moved from secure to organized-insecure (avoidant or ambivalent) between 24 and 36 months experienced a decrease in mother-child communicative quality over the same period. Children who developed disorganized

insecure attachment styles after turning 2 had experienced the greatest decreases in parental sensitivity. Conversely, increased parental sensitivity predicted a change from attachment insecurity to security. In a separate study, where sensitivity improved amongst children insecurely attached in infancy, teachers rated children lower on externalising problems. However, for children already securely attached in infancy changes in parenting quality had no effect on externalising behaviours (NICHD Early Care Research Network 2006).

Sensitivity does not fully explain the intergenerational continuity in attachment styles (Verhage et al. 2016). Nor is sensitivity the aspect of parenting important for attachment security (Wolff et al. 1997). Disorganized attachment specifically is thought to be less the outcome of insensitivity than of frightening, hostile and intrusive behaviour (Lyons-Ruth et al. 1999). However, the studies were subsequently reanalysed to find that when the definition of sensitivity included responsiveness, synchrony, and mutuality, it was distinctly important to attachment (Nievar & Becker 2007). One more recent study finds that the relationship between parent and child attachment styles can be fully accounted for by sensitivity, and ‘autonomy support’, which is how the parent behaves when the infant is exploring (Bernier et al. 2014). Separately, Gutman, Brown and Akerman (2009) find that sensitivity is the only factor showing a continuing relationship with other aspects of parenting at age 5.

Although the quality of parental interaction is consistently found to be central to attachment, there is no evidence that the quantity is. One study finds that time with infants is associated with sensitivity, and the quality of home learning environment, but independent of sensitivity, there is no effect of time with children on attachment security

at 15 months (Huston & Rosenkrantz Aronson 2005).

Non-parental childcare

Brooks-Gunn, Han and Waldfogel (2010) examined the role of maternal employment specifically and found that, on average net of other factors, maternal employment starting before children turned one did not increase the risk of insecure attachment. Whether non-parental childcare affects attachment security or not depends on parent sensitivity. The SECCYD was launched in the 1990s to assess the effects of early childcare on children's attachment. It found that attachment security at age three was not associated with the quantity, quality or the type of childcare (Friedman & Boyle 2008). However, for children already at risk by virtue of not having received sensitive maternal care, low-quality early childcare elevated the risk of insecure attachment (NICHD Early Child Care Research Network 1997; Friedman & Boyle 2008), and externalising problems as late as adolescence (Belsky & Pluess 2011). One study finds that children attach to paid child carers independently of their attachment to their mothers and fathers, and security reflects the child-carer's sensitivity of interaction (Goossens & van IJzendoorn 1990).

Child characteristics

The association between parenting sensitivity and child attachment is contingent on child health. Very premature and low birth weight babies are more likely to have disorganised attachment style than those born full-term. Yet for these children, sensitivity is not associated with disorganized attachment (Wolke et al. 2013). Children with autism

spectrum disorder diagnoses are also less likely to have secure attachment styles, although they are just as likely as other children to receive sensitive care (van IJzendoorn et al. 2007).

Child temperament may play a role in attachment, but it is hard to assess, because studies generally rely on maternal reports of temperament. A review concluded that any effects of child temperament on attachment security depend on maternal characteristics (Mangelsdorf & Frosch 1999). A subsequent study finds that although mother's reports of difficult temperament predicted mothers' reports of externalising problems, this was only true for mothers who engaged in harsh parenting (Miner & Clarke-Stewart 2008).

Socio-emotional determinants of parenting sensitivity

The effect of maternal depression on children's (social-emotional) development is well established, although effects are larger for clinical samples (Dirks et al. 2012). Parental sensitivity is thought a major mechanism (Coyl et al. 2002). Using the NICHD study of Early Child Care, maternal depressive symptoms was associated with attachment insecurity when, and only when, it was combined with low sensitivity (Campbell et al. 2004). In a randomized study of disadvantaged families, Duggan et al. (2009) find that home-visiting is less effective in improving maternal sensitivity when mothers are depressed and suffering attachment anxiety. The negative association between maternal depression and sensitivity persists when adjusting for maternal education or intelligence, family income and marital status (Albright & Tamis-LeMonda 2002). However, the effects of depression on parenting interactions are larger in more disadvantaged samples, suggesting access to other resources can be compensatory (Lovejoy et al. 2000).

The way mothers *think* about their family attachments, regardless of their own style, may also be important to their parenting sensitivity. Addressing this maternal ‘state of mind’ was pivotal in improving attachment-related behaviour in an experimental intervention with high-risk mothers (Bosquet & Egeland 2001).

Socio-economic determinates of parental sensitivity

While parental sensitivity and socio-emotional/mental health are central in attachment studies, their socio-economic causes and context has received comparatively less attention. As seen in Table 1, rates of child attachment security vary by education. 67% of children whose mothers had a Bachelor’s degree were securely attached, compared to 50% of those with a 9th-12th grade education (Andreassen & Fletcher 2007). At both the lowest and highest levels of education, the gradient apparently reverses, with children of mothers with very little education having relatively high rates of secure attachment, and children of mothers with doctoral and professional degrees having relatively low rates. These figures, however, should be interpreted cautiously as they are based on small numbers of observations.

Low-income is also associated with lower parental sensitivity (De Falco et al. 2014). For mothers matched on age, sensitivity fully mediates the association between income and their children’s attachment security (Bakermans-Kranenburg et al. 2004). That is, net of maternal age, income has no relationship to attachment security other than through its relationship with sensitivity.

Additionally, there is evidence that children in low-income families have less stable attachment classifications over childhood, reflecting greater volatility in their

mothers' income, partnership, and health status (Bar-Haim et al. 2000). For disorganized attachment specifically, higher incidences of family violence, separations and transitions help account for the higher rates among low-income families (Bar-Haim et al. 2000; Vondra & Barnett 1999).

Rates of secure attachment are lower for African-American than white children (51% compared to 64%) (Andreassen & Fletcher 2007). Among low-income families, similar associations between sensitive parenting and attachment are found regardless of ethnicity (Dexter et al. 2013).

Young mothers experience higher degrees of stress, and tend to be less responsive to their infants than older mothers (Flaherty & Sadler 2011). The higher probability of insecure attachment for children of adolescent parents is seen net of other factors correlated with young parenthood, such as education, family structure, and income (Berlin et al. 2002), but there is little variation in these factors among young parents.

Together, maternal education, ethnicity and age accounts for most of the difference in attachment security between different family structures (Rosenkrantz Aronson & Huston 2004). There is no evidence that a secure attachment to two parents brings additional benefits. However, for the risk of behavioural and externalising problems, a secure attachment with one parent can compensate for an insecure attachment with another (Kochanska & Kim 2013; Verschueren & Marcoen 1999). Additionally, parents' relationship quality and parenting sensitivity are strongly associated (Gable et al. 1994; Lamb & Lewis 2010; Doyle et al. 2000).

Finally, there is evidence that the socio-economic context outside the family influences parenting sensitivity. For instance, adjusting for income, education and age,

residential crowding is associated with lower maternal responsiveness (Evans et al. 2009), as are features of poor neighbourhoods (Pinderhughes et al. 2007). Certainly, natural experiments show that an improved neighbourhood environments, and income supplements, can improve children's socio-emotional development (Leventhal & Brooks-Gunn 2003; Akee et al. 2015). These suggest that macro social and economic factors can influence the micro-level of parent sensitivity and attachment security.

4. Conclusion

The social sciences have recently converged in recognising the importance of socio-emotional skills. A similar convergence is needed around where these socio-emotional skills come from, that integrates the role of developmental psychological process – attachment – into existing models of the intergenerational transmission of inequality.

Attachment is of course only one mechanism among many in the intergenerational transmission of advantages and disadvantages. Attachment alone falls far short of full explanation for variation in children's development, and even for continuities between parents and children's skills. Few studies provide tests of the causal role of attachment security in children's development, or of the various antecedents of attachment security. Yet the magnitude, number and consistency of associations spanning multiple decades, samples and specifications indicates that attachment is relevant to the intergenerational transmission of (dis)advantages.

Consistent with attachment theory, the effects of attachment (in)security are generally larger for socio-emotional than for cognitive aspects of child development. Yet

the research on attachment also supports the idea of developmental complementarity between the two kinds of skills. In parallel, there is a need to better understand how parents' socio-emotional health and their socio-economic context relate, and influence their ability to interact sensitively with their young children.

Attachment, partly due to its popular presentation, is often thought to demand highly intensive parenting, particularly of women. There is some irony to this because attachment theory was always concerned about overbearing or intrusive parenting and allied with the emphasis on “good enough” mothering (Winnicott 2012). Sensitive parenting, in line with attachment theory, can be seen as the primary way in which attachment is enacted and brought into embodied being. But greater attention is needed to the context in which mothers and fathers parent: social and economic conditions can work for or against sensitivity.

By emphasising emotional and relational aspects of parenting, attachment can complement parental investment and socialization models of transmission. Attachment can also enrich life-course and multi-generational perspectives on inequality (Ermisch 2008; Mare 2014), through its attention to the enduring role of childhood conditions, and psychological mechanisms through which advantages and disadvantages persist across generations. Those seeking to understand the transmission of socio-economic inequalities from parents to children should not overlook social-emotional processes, including attachments. Equally though, our understanding of socio-emotional processes will remain incomplete without further consideration of how socio-economic conditions affect parents' capacity to form secure attachments with their children.

References

- Ainsworth, M.D.S., Bell, S. & Stayton, D., 1974. Infant-mother attachment and social development: Socialisation as a product of reciprocal sensitivity to signals. In *Introduction of the child into a social world*. Cambridge, UK: Cambridge University Press, pp. 99–135.
- Ainsworth MD, Blehar M, Waters E, Wall S & Ainsworth MD, B.M., 1978. *Patterns of Attachment: A Psychological Study of the Strange Situation*, Hillsdale NJ: Lawrence Erlbaum Associates.
- Akee, R. et al., 2015. How Does Household Income Affect Child Personality Traits and Behaviors? *NBER Working Paper Series*, (21562).
- Albright, M.B. & Tamis-LeMonda, C.S., 2002. Maternal Depressive Symptoms in Relation to Dimensions of Parenting in Low-Income Mothers. *Applied Developmental Science*, 6(1), pp.24–34.
- Andreassen, C. & Fletcher, P., 2007. *Early Childhood Longitudinal Study, Birth Cohort (ECLS–B) Psychometric Report for the 2-Year Data Collection (NCES 2007–084)*, Washington, D.C.
- Andreassen, C. & West, J., 2007. Measuring socioemotional functioning in a national birth cohort study. *Infant Mental Health Journal*, 28(6), pp.627–646.
- Bakermans-Kranenburg, M.J., van IJzendoorn, M.H. & Juffer, F., 2003. Less is More: Meta-analyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin*, 129(2), pp.195–215. Available at: <http://doi.apa.org/getdoi.cfm?doi=10.1037/0033-2909.129.2.195> [Accessed May 21,

2013].

- Bakermans-Kranenburg, M.J., van IJzendoorn, M.H. & Kroonenberg, P.M., 2004. Differences in attachment security between African-American and white children: ethnicity or socio-economic status? *Infant Behavior and Development*, 27(3), pp.417–433.
- Bar-Haim, Y. et al., 2000. Stability and Change of Attachment at 14, 24, and 58 Months of Age: Behavior, Representation, and Life Events. *Journal of Child Psychology and Psychiatry*, 41(3), pp.381–388.
- Bartley, M., Head, J. & Stansfeld, S., 2007. Is attachment style a source of resilience against health inequalities at work? *Social science & medicine*, 64(4), pp.765–75.
- Belsky, J. & Fearon, R.M.P., 2002a. Early attachment security, subsequent maternal sensitivity, and later child development: does continuity in development depend upon continuity of caregiving? *Attachment & human development*, 4(3), pp.361–87.
- Belsky, J. & Fearon, R.M.P., 2002b. Infant-mother attachment security, contextual risk, and early development: a moderational analysis. *Development and psychopathology*, 14(2), pp.293–310.
- Belsky, J. & Pluess, M., 2011. Differential susceptibility to long-term effects of quality of child care on externalizing behavior in adolescence? *International Journal of Behavioral Development*, 36(1), pp.2–10.
- Berlin, L.J., Brady-Smith, C. & Brooks-Gunn, J., 2002. Links between childbearing age and observed maternal behaviors with 14-month-olds in the Early Head Start Research and Evaluation Project. *Infant Mental Health Journal*, 23(1–2), pp.104–

129.

- Bernier, A. et al., 2012. Social factors in the development of early executive functioning: a closer look at the caregiving environment. *Developmental science*, 15(1), pp.12–24.
- Bernier, A. et al., 2014. Taking stock of two decades of attachment transmission gap: broadening the assessment of maternal behavior. *Child development*, 85(5), pp.1852–65.
- Bernier, A. & Meins, E., 2008. A threshold approach to understanding the origins of attachment disorganization. *Developmental Psychology*, 44(4), pp.969–982.
- Bianchi, S. et al., 2004. Inequality in parental investment in child-rearing: Expenditures, time, and health. *Social Inequality*, (February), pp.189–219.
- Bokhorst, C.L. et al., 2003. The Importance of Shared Environment in Mother-Infant Attachment Security: A Behavioral Genetic Study. *Child Development*, 74(6), pp.1769–1782.
- Borghans, L. et al., 2008. The Economics and Psychology of Personality Traits. *Journal of Human Resources*, 43(4), pp.972–1059.
- Bosquet, M. & Egeland, B., 2001. Associations among maternal depressive symptomatology, state of mind and parent and child behaviors: implications for attachment-based interventions. *Attachment & human development*, 3(2), pp.173–99.
- Bowlby, J., 1973. *Separation: Anger and Anxiety*, London: Hogarth.
- Bretherton, I., 2010. Fathers in attachment theory and research: a review. *Early Child*

Development and Care, 180(1–2), pp.9–23.

Bretherton, I., 1992. The origins of attachment theory: John Bowlby and Mary

Ainsworth. *Developmental Psychology*, 28(5), pp.759–775.

Brooks-Gunn, J., Han, W.-J. & Waldfogel, J., 2010. First-year Maternal Employment and

Child Development in the first 7 years. *Monographs of the Society for Research in*

Child Development, 75(2), pp.vii–ix.

Campbell, S.B. et al., 2004. The course of maternal depressive symptoms and maternal

sensitivity as predictors of attachment security at 36 months. *Development and*

psychopathology, 16(2), pp.231–52.

Chase-Lansdale, L. & Brooks-Gunn, J., 2014. Two-Generation Programs in the Twenty-

First Century. *Future of Children*, 24(1), pp.13–39.

Coleman, J.A., 1988. Social Capital in the Creation of Human Capital. *American Journal*

of Sociology, 94, pp.S95–S120.

Coneus, K., Laucht, M. & Reuss, K., 2012. The role of parental investments for cognitive

and noncognitive skill formation--evidence for the first 11 years of life. *Economics*

and human biology, 10(2), pp.189–209.

Cooper, H., Hedges, L. V. & Valentine, J.C., 2009. *The Handbook of Research Synthesis*

and Meta-Analysis Second Edi., New York: Russell Sage Foundation.

Cox, S.M., 2006. Bridging Attachment Theory and Attachment Parenting with Feminist

Methods of Inquiry. *Journal of the Association for Research on Mothering.*

Mothering and Feminism [special issue], , 8(1–2), pp.83–95.

- Coyl, D.D., Roggman, L.A. & Newland, L.A., 2002. Stress, maternal depression, and negative mother-infant interactions in relation to infant attachment. *Infant Mental Health Journal*, 23(1–2), pp.145–163.
- Crowell, J. a & Treboux, D., 1995. A Review of Adult Attachment Measures: Implications for Theory and Research. *Social Development*, 4(3), pp.294–327.
- Currie, J. & Stabile, M., 2006. Child mental health and human capital accumulation: the case of ADHD. *Journal of Health Economics*, 25(6), pp.1094–1118.
- Cyr, C. et al., 2010. Attachment security and disorganization in maltreating and high-risk families: a series of meta-analyses. *Development and psychopathology*, 22(1), pp.87–108.
- Dexter, C.A. et al., 2013. Parenting and Attachment Among Low-Income African American and Caucasian Preschoolers. *Journal of Family Psychology*, 27(4), pp.629–38.
- Dirks, M.A. et al., 2012. Annual research review: embracing not erasing contextual variability in children’s behavior--theory and utility in the selection and use of methods and informants in developmental psychopathology. *Journal of Child Psychology and Psychiatry*, 53(5), pp.558–74.
- Doyle, A.B. et al., 2000. Child Attachment Security and Self-Concept: Associations With Mother and Father Attachment Style and Marital Quality. *Merrill-Palmer Quarterly*, 46(3), pp.514–539.
- Drake, K., Belsky, J. & Fearon, R.M.P., 2013. From Early Attachment to Engagement With Learning in School: The Role of Self-Regulation and Persistence.

Developmental Psychology, 50(5), pp.1350–1361.

Duggan, A.K. et al., 2009. Examining maternal depression and attachment insecurity as moderators of the impacts of home visiting for at-risk mothers and infants. *Journal of consulting and clinical psychology*, 77(4), pp.788–99.

Duncan, G.J. & Magnuson, K., 2011. The nature and impact of early achievement skills, attention skills, and behavior problems. In *Whither opportunity? Rising Inequality, Schools, and Children's Life Chances*. New York: Russell Sage Foundation, pp. 47–69.

Ermisch, J., 2008. Origins of Social Immobility and Inequality: Parenting and Early Child Development. *National Institute Economic Review*, 205(1), pp.62–71.

Evans, G.W. et al., 2009. Crowding and Cognitive Development: The Mediating Role of Maternal Responsiveness Among 36-Month-Old Children. *Environment and Behavior*, 42(1), pp.135–148.

De Falco, S. et al., 2014. Predictors of mother-child interaction quality and child attachment security in at-risk families. *Frontiers in psychology*, 5, p.898.

Fearon, P. et al., 2006. In search of shared and nonshared environmental factors in security of attachment: a behavior-genetic study of the association between sensitivity and attachment security. *Developmental psychology*, 42(6), pp.1026–40.

Fearon, R.P. et al., 2010. The significance of insecure attachment and disorganization in the development of children's externalizing behavior: a meta-analytic study. *Child development*, 81(2), pp.435–56.

- Flaherty, S.C. & Sadler, L.S., 2011. A review of attachment theory in the context of adolescent parenting. *Journal of Pediatric Health Care*, 25(2), pp.114–21.
- Fletcher, J.M., 2010. Adolescent depression and educational attainment: results using sibling fixed effects. *Health economics*, 19(7), pp.855–71.
- Friedman, S.L. & Boyle, D.E., 2008. Attachment in US children experiencing nonmaternal care in the early 1990s. *Attachment & human development*, 10(3), pp.225–61.
- Gable, S., Crnic, K. & Belsky, J., 1994. Coparenting within the family system: Influences on children's development. *Family relations*, 43(4), pp.380–386.
- Gilliom, M. et al., 2002. Anger regulation in disadvantaged preschool boys: Strategies, antecedents, and the development of self-control. *Developmental Psychology*, 38(2), pp.222–35.
- Goossens, F.A. & van IJzendoorn, M.H., 1990. Quality of Infants' Attachments to Professional Caregivers: Relation to Infant-Parent Attachment and Day-Care Characteristics. *Child Development*, 61(3), pp.832–837.
- Groh, A.M. et al., 2012. The significance of insecure and disorganized attachment for children's internalizing symptoms: a meta-analytic study. *Child Development*, 83(2), pp.591–610.
- Grossmann, K. et al., 2002. The Uniqueness of the Child-Father Attachment Relationship: Fathers' Sensitive and Challenging Play as a Pivotal Variable in a 16-year Longitudinal Study. *Social Development*, 11(3), pp.301–337.

- Gutman, L.M., Brown, J. & Akerman, R., 2009. *Nurturing Parenting Capability: The Early Years*, London.
- Hamilton, C.E., 2000. Continuity and discontinuity of attachment from infancy through adolescence. *Child Development*, 71(3), pp.690–4.
- Heckman, J.J. & Mosso, S., 2014. The Economics of Human Development and Social Mobility. *Annual Review of Economics*, 6(1), pp.689–733.
- Heckman, J.J., Pinto, R. & Savelyev, P., 2013. Understanding the Mechanisms Through Which an Influential Early Childhood Program Boosted Adult Outcomes. *The American Economic Review*, 103(6), pp.2052–2086.
- Hoffman, K.T. et al., 2006. Changing toddlers' and preschoolers' attachment classifications: the Circle of Security intervention. *Journal of consulting and clinical psychology*, 74(6), pp.1017–26.
- Howes, C., 1999. Attachment relationships in the context of multiple caregivers. In J. Cassidy & P. R. Shaver, eds. *Handbook of attachment: Theory, Research, and clinical applications*. New York, NY: Guilford Press, pp. 671–687.
- Huston, A.C. & Rosenkrantz Aronson, S., 2005. Mothers' time with infant and time in employment as predictors of mother-child relationships and children's early development. *Child development*, 76(2), pp.467–82.
- van IJzendoorn, M., 1995. Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, 117(3), pp.387–403.

- van IJzendoorn, M.H. et al., 2007. Parental sensitivity and attachment in children with autism spectrum disorder: comparison with children with mental retardation, with language delays, and with typical development. *Child development*, 78(2), pp.597–608.
- van IJzendoorn, M.H. & Bakermans-Kranenburg, M.J., 2006. DRD4 7-repeat polymorphism moderates the association between maternal unresolved loss or trauma and infant disorganization. *Attachment & human development*, 8(4), pp.291–307.
- van IJzendoorn, M.H., Dijkstra, J. & Bus, A.G., 1995. Attachment, Intelligence, and Language: A Meta-analysis. *Social Development*, 4(2), pp.115–128.
- van IJzendoorn, M.H., Schuengel, C. & Bakermans-Kranenburg, M.J., 1999. Disorganized attachment in early childhood: meta-analysis of precursors, concomitants, and sequelae. *Development and psychopathology*, 11(2), pp.225–49.
- Jacobsen, T. & Hofmann, V., 1997. Children's attachment representations: longitudinal relations to school behavior and academic competency in middle childhood and adolescence. *Developmental psychology*, 33(4), pp.703–10.
- Karoly, L.A., Kilburn, M.R. & Cannon, J.S., 2005. *Early Childhood Interventions*, Santa Monica, CA: RAND Corporation.
- Kochanska, G. & Kim, S., 2013. Early attachment organization with both parents and future behavior problems: from infancy to middle childhood. *Child development*, 84(1), pp.283–96.
- Lamb, M. & Lewis, C., 2010. The development and significance of father-child relations

in two-parent families. In M. Lamb, ed. *The role of the father in child development*. Hoboken, NJ: Wiley, pp. 94–153.

Lareau, A., 2003. *Unequal Childhoods: Class, Race, and Family Life*, University of California Press.

Leventhal, T. & Brooks-Gunn, J., 2003. Moving to opportunity: an experimental study of neighborhood effects on mental health. *American Journal of Public Health*, 93(9), pp.1576–82.

Lindsay, G. et al., 2011. *Parenting Early Intervention Programme Evaluation*,

Lovejoy, M.C. et al., 2000. Maternal depression and parenting behavior: A meta-analytic review. *Clinical Psychology Review*, 20(5), pp.561–592.

Lyons-Ruth, K. et al., 2013. Parsing the construct of maternal insensitivity: distinct longitudinal pathways associated with early maternal withdrawal. *Attachment & human development*, 15(5–6), pp.562–82.

Lyons-Ruth, K., Bronfman, E. & Parsons, E., 1999. Maternal Frightened, Frightening, or Atypical Behavior and Disorganized Infant Attachment Patterns. *Monographs of the Society for Research in Child Development*, 64(3), pp.67–96.

Macvarish, J., Lee, E. & Lowe, P., 2014. The “First Three Years” Movement and the Infant Brain: A Review of Critiques. *Sociology Compass*, 8(6), pp.792–804.

Main, M. & Goldwyn, R., 1994. *Adult attachment rating and classification system, Manual: Version 6.0.*,

Main, M. & Solomon, J., 1990. *Procedures for Identifying Infants as*

Disorganized/Disoriented during the Ainsworth Strange Situation, Chicago:
University of Chicago Press.

Mangelsdorf, S.C. & Frosch, C.A., 1999. Temperament and attachment: one construct or two? *Advances in child development and behavior*, 27, pp.181–220.

Mare, R.D., 2014. Multigenerational Aspects of Social Stratification: Issues for Further Research. *Research in social stratification and mobility*, 35, pp.121–128.

McLeod, J.D., Uemura, R. & Rohrman, S., 2012. Adolescent mental health, behavior problems, and academic achievement. *Journal of Health and Social Behavior*, 53(4), pp.482–97.

Mervis, J., 2014. Research Transparency. Why null results rarely see the light of day. *Science (New York, N.Y.)*, 345(6200), p.992.

Miljkovitch, R., Danet, M. & Bernier, A., 2012. Intergenerational transmission of attachment representations in the context of single parenthood in France. *Journal of family psychology : JFP : journal of the Division of Family Psychology of the American Psychological Association (Division 43)*, 26(5), pp.784–92.

Miner, J.L. & Clarke-Stewart, K.A., 2008. Trajectories of externalizing behavior from age 2 to age 9: relations with gender, temperament, ethnicity, parenting, and rater. *Developmental psychology*, 44(3), pp.771–86.

Moffitt, T.E. et al., 2011. A gradient of childhood self-control predicts health, wealth, and public safety. *Proceedings of the National Academy of Sciences of the United States of America*, 108(7), pp.2693–8.

- Moss, E. et al., 2011. Efficacy of a home-visiting intervention aimed at improving maternal sensitivity, child attachment, and behavioral outcomes for maltreated children: a randomized control trial. *Development and psychopathology*, 23(1), pp.195–210.
- Moss, E. et al., 2005. Stability of Attachment During the Preschool Period. *Developmental psychology*, 41(5), pp.773–83.
- Murray, A. & Yingling, J., 2000. Competence in language at 24 months: relations with attachment security and home stimulation. *The Journal of genetic psychology*, 161(2), pp.133–40.
- Murray, L. et al., 2011. Maternal postnatal depression and the development of depression in offspring up to 16 years of age. *Journal of the American Academy of Child and Adolescent Psychiatry*, 50(5), pp.460–70.
- NICHD Early Child Care Research Network, 2006. Infant-mother attachment classification: risk and protection in relation to changing maternal caregiving quality. *Developmental psychology*, 42(1), pp.38–58.
- NICHD Early Child Care Research Network, 1997. The Effects of Infant Child Care on Infant-Mother Attachment Security: Results of the NICHD Study of Early Child Care NICHD Early Child Care Research Network. *Child Development*, 68(5), pp.860–879.
- Nievar, M.A. & Becker, B.J., 2007. Sensitivity as a Privileged Predictor of Attachment: A Second Perspective on De Wolff and van IJzendoorn's Meta-analysis. *Social Development*, 17(1), pp.102–114.

- Olds, D.L. & Kitzman, H., 1993. Review of Research on Home Visiting for Pregnant Women and Parents of Young Children. *Future of Children*, 3(3).
- Owens, E. & Shaw, D., 2003. Poverty and Early Child Adjustment. In S. Luther, ed. *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities*. Cambridge University Press, pp. 267–292.
- Pinderhughes, E.E. et al., 2007. Parenting in Context: Impact of Neighborhood Poverty, Residential Stability, Public Services, Social Networks, and Danger on Parental Behaviors. *Journal of marriage and the family*, 63(4), pp.941–953.
- Ramchandani, P.G. et al., 2013. Do early father-infant interactions predict the onset of externalising behaviours in young children? Findings from a longitudinal cohort study. *Journal of child psychology and psychiatry, and allied disciplines*, 54(1), pp.56–64.
- Roisman, G.I. & Fraley, R.C., 2008. A behavior-genetic study of parenting quality, infant attachment security, and their covariation in a nationally representative sample. *Developmental psychology*, 44(3), pp.831–9.
- Rosenkrantz Aronson, S. & Huston, A.C., 2004. The Mother-Infant Relationship in Single, Cohabiting, and Married Families: A Case for Marriage? *Journal of Family Psychology*, 18(1), pp.5–18.
- Shah, P.E., Fonagy, P. & Strathearn, L., 2010. Is attachment transmitted across generations? The plot thickens. *Clinical child psychology and psychiatry*, 15(3), pp.329–45.
- Shonkoff, J.P. & Garner, A.S., 2012. The lifelong effects of early childhood adversity

and toxic stress. *Pediatrics*, 129(1), pp.e232-46.

Spieker, S., Nelson, E.M. & Condon, M.-C., 2011. Validity of the TAS-45 as a measure of toddler-parent attachment: preliminary evidence from Early Head Start families.

Attachment & human development, 13(1), pp.69–90.

Sroufe, L.A., 2011. Early Relationships and the Development of Children. *Infant Mental*

Health Journal, 21(2000), pp.67–74.

Sroufe, L.A. et al., 2005. *The Development of the Person*, The Guilford Press.

Thompson, R., 2008. Early Attachment and later development. In J. Cassidy & P. R.

Shaver, eds. *Handbook of Attachment: Theory, Research and Clinical Applications*.

Turney, K. & McLanahan, S., 2015. The academic consequences of early childhood

problem behaviors. *Social Science Research*, 54, pp.131–45.

Verhage, M.L. et al., 2016. Narrowing the transmission gap: A synthesis of three decades

of research on intergenerational transmission of attachment. *Psychological Bulletin*,

142(4), pp.337–366.

Verschueren, K. & Marcoen, A., 1999. Representation of self and socioemotional

competence in kindergartners: differential and combined effects of attachment to

mother and to father. *Child development*, 70(1), pp.183–201.

Vondra, J.I. & Barnett, D., 1999. Stability and Change in Infant Attachment in a Low

Income Sample. *Monographs of the Society for Research in Child Development*,

64(258).

Waters, E. & Deane, K., 1985. Defining and assessing individual differences in

attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. *Monographs of the Society for Research in Child Development*, 50(1–2, Serial No.209), pp.41–65.

Winnicott, D.W., 2012. *The Family and Individual Development*, Routledge.

Wolff, M.S., IJ, V. & Zendoorn, M.H., 1997. Sensitivity and Attachment: A Meta-Analysis on Parental Antecedents of Infant Attachment. *Child Development*, 68(4), pp.571–591.

Wolke, D., Eryigit-Madzwamuse, S. & Gutbrod, T., 2013. Very preterm/very low birthweight infants' attachment: infant and maternal characteristics. *Archives of disease in childhood. Fetal and neonatal edition*.