The Transmission of Attachment Across Three Generations: A Study in Adulthood

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One of the most striking pieces of evidence in attachment research is that attachment security is transmitted from one generation to the next. Although there has been an enormous advance in the understanding of this process, this area of research suffers from some significant gaps, as for example the transmission across 3 generations when considering the 2 parents as well as the 2 couples of grandparents. The current study was designed to fill this gap in existing literature by investigating AAI attachment representations in the members of 3 generations, belonging to a total of 32 families, each including an adult offspring, both parents and the 4 grandparents (N = 224). Main findings show that the transmission across 2 generations was stronger in the presence of a female caregiver (either mother or maternal/ paternal grandmother), and that across 3 generations was confirmed only in the presence of 2 female caregivers (grandmother to mother to offspring). Conversely, the transmissions across 3 generations with only 1 or no female caregiver were not confirmed. Last, experiencing 2 secure parents increased the likelihood of developing a secure state of mind with respect to attachment among offspring, mothers and fathers, 95% confidence intervals [3.52, 1,238.72], [1.67, 31.17], and [1.67, 19.98], respectively. These findings may have important theoretical implications related to the understanding of the factors involved in the continuity and discontinuity of attachment patterns across generations.

Keywords: state of mind with respect to attachment, intergenerational transmission of attachment, Adult Attachment Interview, match of parents’ security parental features have been proposed as possible mediators in intergenerational transmission (Bernier, Matte-Gagné, Bélanger, & Whipple, 2014; Sette, Coppola, & Cassibba, 2015 for a review). Moreover, the process is currently thought to be moderated by multiple factors related to the parents, the child and the rearing context, some of which have received empirical support. These include the parent’s gender, the dyad’s risk status (e.g., teenage motherhood, preterm birth, low SES) and the absence of a biological link between parent and child, as in the case of adopted children (Verhage et al., 2016). Along with these moderators, others have been suggested but require further investigation, including the genetic mechanisms involved in parenting and attachment, the infant’s temperamental dispositions, the quality of the couple’s relationship and family functioning (Verhage et al., 2016).

There are several suggested moderators which are worthy of further research; the impact of time is certainly one: according to the predictions of attachment theory, the quality of attachment relationships is rooted in the history of interactions between the child and the caregiver; thus, in the presence of stable life conditions, it is expected that the correspondence between parents’ and children’s attachment will increase as children grow older (Verhage et al., 2016). Nevertheless, it is also plausible that such continuity might be lost over time, due to the impact of many life events, which may promote changes in parents’ attachment organization and caregiving behavior, as well as in children’s attachment. Unfortunately, the metanalytic findings available leave this issue unresolved. Indeed, van IJzendoorn’s meta-analysis (1995) showed that the continuity of attachment across generations gets weaker as children grow older (Verhage et al., 2016).
get older, whereas Verhage and colleagues (2016) came to the opposite conclusion. Such conflicting findings underline the need to pursue more research on this issue.

We suggest that one compelling way to investigate how time can affect the intergenerational transmission of attachment is to test the correspondence between parents’ and offspring’s states of mind with regards to attachment. This construct, assessed through the Adult Attachment Interview (AAI), refers to an organized, and relatively stable set of mental representations thought to be grounded in the repeated experiences of interaction with the attachment figure/s during the early years of life and reflecting the degree of security and confidence the person experiences in ongoing intimate relationships (Main et al., 1985; van IJzendoom, 1995). Main and colleagues’ (1985) believed that this set of mental representations does not necessarily reflect the quality of early attachment experiences, but instead the adult’s current state of mind, thus suggesting that during development, life events and/or new attachment relationships may promote a reorganization of early attachment patterns. In line with such a definition, security in adulthood is not reflecting the pattern of attachment experienced in childhood, but indeed a clear and coherent understanding of childhood attachment experiences, the ways these have affected development of personality and the quality of present, intimate relationships, along with a general ability to understand how secure attachment relationships work (Main & Goldwyn, 1998). Research both on individuals who have experienced early unfavorable attachment experiences and are still able to earn security later on in life (Hesse, 2008) and on the continuity of attachment from infancy to early adulthood (Weinfield, Stroufe, & Egeland, 2000) provides support for the idea that the quality of an adult’s state of mind with regards to attachment does not necessarily correspond to the quality of the early attachment relationship/s with one or more early caregivers.

Moreover, the state of mind with respect to attachment integrates the attachment history with both parents and/or other caregivers (Hesse, 2008). Thus, although we might expect an infant to develop divergent attachment patterns with each parent based on the history of interactions with them, an adult’s attachment state of mind is a unitary set of mental representations.

These peculiar features are of great relevance when investigating the intergenerational process. Indeed, a test of the correspondence between parents’ and offspring’s AAI classifications will allow us to verify primarily how stable the transmission process is over time and, second, which parent has contributed most to the offspring’s mental state with regards to attachment in adulthood. Notwithstanding these advantages, to our knowledge only three studies have investigated the correspondence of parents’ and offspring’s AAI classification. Benoit and Parker’s (1994) three-generation study found a three-way correspondence of 75% between grandmothers’ AAI categories and those of their adolescent daughters. Similarly, Sagi-Schwartz and colleagues (2003) found a concordance of 60% (autonomous/nonautonomous) between grandparents (Holocaust survivors and a control group) and their adult daughters. More recently, Scharf, Mayseless, and Kivenson-Baron (2012) tested the correspondence between both mothers’ and fathers’ AAI attachment classifications and those of their sons, reporting a continuity across the maternal but not the paternal line.

Due to the scarce number of studies available, this area of research suffers from some significant gaps. First, with the exception of Scharf and colleagues’ (2012) study, the intergenerational correspondence between AAI classifications has only been tested using mothers’ assessments. In attachment research the role of fathers is receiving growing attention, in line with their increased involvement in child rearing responsibilities (e.g., Bernier & Miljkovitch, 2009; Miljkovitch, Danet, & Bernier, 2012; Miljkovitch, Pirrehumbert, Bretherton, & Haflon, 2004); moreover, fathers are known to become more engaged in the upbringing of their children particularly in adolescence (e.g., Allen & Daly, 2007; Graziano, Bonino, & Cattelino, 2009; Marta, 1997; Pace, Cioppo, & Schimmenti, 2012), and presumably have a greater possibility to influence their children’s attachment organization when they get older. Thus, the lack of attention paid to the correspondence between fathers’ and offspring’s AAI classification is rather striking.

Furthermore, the intergenerational correspondence of AAI classifications has only been tested across two but never three generations, which would be very helpful in attempting to understand the role of time over a longer period. Indeed, the only two studies available on three generations assessed the offspring’s attachment in infancy, using the Strange Situation Procedure (Benoit & Parker, 1994; Hautamäki, Hautamäki, Neuvonen, & Maliniemi-Piispanen, 2010). Likewise, these three-generation studies have focused on the maternal line, by excluding fathers and grandparents belonging to the paternal line, as well as the grandfather belonging to the maternal line (Benoit & Parker, 1994).

Third, because of the restricted number of studies available, it is so far unknown whether the continuity across three generations might vary depending on cultural background. In Italy, for example, mothers have always been recognized as the primary caregivers, especially among traditional families, such as those in the South of Italy. Regarding this, differences between Italian mothers’ and fathers’ attributions regarding successes and failures in caregiving situations and progressive versus authoritarian attitudes reflect the cultural belief that mothers are the primary caregivers and are responsible for the family and children’s outcomes (Bombi et al., 2011). Nevertheless, Italian fathers are becoming increasingly involved in caregiving duties and, despite dated findings which have supported the view that Italian families are “matrifocal” (see Marta, 1997 for a review), more recent findings show that a father’s support, along with that of the mothers, plays an important role in Italian adolescents’ psychosocial adjustment and well-being and prevents them from engaging in risk behaviors (Attili, Vermiglia, & Roazzi, 2011; Graziano et al., 2009; Marta, 1997; Pace et al., 2012).

The last gap has to do with the impact that the match between a mother’s and a father’s attachment organization might have on an offspring’s attachment: based on updated meta-analytic findings, Verhage and colleagues (2016) revisited the model of the intergenerational transmission of attachment and suggest that family functioning, the couple’s relationship and their support might be important moderators of the process. In this respect, it is plausible to suggest that experiencing two secure parents, instead of one or none enhances the likelihood of the offspring developing a secure state of mind with regards to attachment. This is first because these children have more opportunity to be exposed to sensitive caregiving (Attili, Vermiglia, & Roazzi, 2012). Second, two secure parents are expected to have a higher quality of couple functioning compared to couples with one or no secure partners.
which might support the child’s development toward security. Indeed, existing findings on the influence of AAI attachment security in couple functioning show that secure partners were more likely to be in better functioning couples, display more positive and less conflictual behaviors and are more prone to use and provide secure base behaviors during problem-solving interactions with their partners (Cohn, Silver, Cowan, Cowan, & Pearson, 1992; Crowell et al., 2002; Treboux, Crowell, & Waters, 2004). Therefore, we might suggest that the same pattern of behaviors will be displayed in facing caregiving challenges, thus increasing the probability that the child experiences positive affective experiences and develops a secure mental representation of attachment over time. Unfortunately, thus far no study has investigated this issue.

The current study was designed to fill a gap in existing literature by investigating AAI attachment representations in the members of three generations. More specifically, the aims were to test the transmission of attachment patterns across two generations (parent–offspring) and three generations (grandparent–parent–offspring), by including assessments belonging not only to the maternal line (grandmother–parent–offspring triads), but also those of the father line. Because Italian mothers have greater responsibility in caregiving duties and in matters concerning the family than Italian fathers (Bombi et al., 2011), we hypothesize across both two and three generations, a stronger transmission of attachment to the next generation when caregivers are mothers and grandmothers compared to when they are fathers and grandfathers. As to the second aim, we will test whether the match of parents’ security increases the likelihood of offspring developing a secure attachment. We hypothesize that secure couples are more likely to have offspring with secure attachment, when compared to couples with one or no secure parent. Moreover, because of the cultural specificities described above according to which Italian mothers might have a greater influence than fathers on their children’s development, we expect that when parents have mismatched attachment classifications, the child is more likely to be secure when the mother, rather than the father, is the secure parent.

Method

Sample

A total of 224 subjects were involved in the study, belonging to 32 volunteer low-risk middle class families, none with a history of divorce and each made up of a child, two parents, both grandparents of the maternal line and both grandparents of the paternal line. None of the subjects had a history of psychiatric disorders. The families were contacted through the offspring subgroup, including all students attending a course in developmental psychology for a bachelor’s degree in psychological sciences at a state university in an urban area of Italy. Most students were female (84%; N = 27) and firstborn (81%; N = 26). Information on age and years of education for each group of family members are reported in Table 1. Overall, years of education were in line with the latest census data on the Italian population (ISTAT, 2015).

Procedure

Families were contacted through the offspring attending a university course and were asked to take part in a study on the continuity of attachment across three generations. The requirement for participation was written consent from all family participants belonging to the three generations. The families did not receive compensation for their participation and the sample was treated in accordance with the ethical standards outlined by the American Psychological Association and the Italian Association of Academic Psychologists (www.aipass.org).

Data were collected during home visits and background information such as gender, age, years of education, and current relationship status (e.g., married, divorced or cohabiting), were collected through a brief ad hoc questionnaire.

Instruments and Measures

Adult Attachment Interview (Main & Goldwyn, 1998).

This semistructured interview is used to evaluate an adult’s state of mind with respect to attachment, based on the degree of coherence of her or his autobiographical narrative. Transcripts are classified as either secure or insecure (dismissing or preoccupied-entangled). Differently from insecure adults, secure adults are collaborative during the interview, and the transcript of their interview provides a credible, internally consistent, and free-flowing picture of the adult’s experiences, feelings, and viewpoints regarding attachment, regardless of whether their past experiences with parents were primarily positive or negative. A last category may be added to those mentioned previously, describing an unresolved state of mind with respect to past loss or trauma (unresolved). The AAI has been widely used in non-English speaking countries to assess adult’s state of mind with respect to attachment (Hesse, 2008). In the Italian context, the interview has been shown to be a reliable and valid measure of attachment representations: the AAI protocol and coding system yield distributions of the attachment classifications comparable with those reported in English-speaking countries (see Cassibba, Sette, Bakermans-Kranenburg, & van IJzendoorn, 2013 for meta-analytic evidence on the Italian population). Moreover, the interview has been a useful tool to test, in this cultural context, the validity of attachment predictions (e.g., Ammaniti, Speranza, & Candelori, 1996; Cassibba, van IJzendoorn & Coppola, 2012; Coppola, Ponzetti, Aureli, & Vaughn, 2016).

Interviews were collected by one certified AAI coder (the third author) and transcribed verbatim; a total of 5 independent certified coders were involved, each one in charge of coding transcripts of one family member (offspring; fathers; mothers; grandmothers; grandfathers) in order to guarantee independence between the measures. Agreement was assessed on 100% of the interviews between each coder and a second certified coder and yielded a

<table>
<thead>
<tr>
<th>Family member</th>
<th>Age M (SD; range)</th>
<th>Years of education M (SD; range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offspring</td>
<td>20.1(1.78; 19–25)</td>
<td>13 (0)</td>
</tr>
<tr>
<td>Mothers</td>
<td>46.84 (3.57; 39–55)</td>
<td>11.56 (3.86; 5–18)</td>
</tr>
<tr>
<td>Fathers</td>
<td>49.19 (4.09; 43–65)</td>
<td>12.69 (3.58; 8–18)</td>
</tr>
<tr>
<td>Maternal grandmothers</td>
<td>74.41 (6.45; 61–84)</td>
<td>5.72 (1.73; 5–13)</td>
</tr>
<tr>
<td>Maternal grandfathers</td>
<td>78.13 (6.35; 65–87)</td>
<td>6.03 (2.44; 5–13)</td>
</tr>
<tr>
<td>Paternal grandmothers</td>
<td>75.25 (4.84; 65–85)</td>
<td>5.84 (2.71; 5–18)</td>
</tr>
<tr>
<td>Paternal grandfathers</td>
<td>78.31 (5.42; 65–87)</td>
<td>6.75 (3.59; 5–18)</td>
</tr>
</tbody>
</table>
three-way classification table (free/autonomous vs. dismissing vs. preoccupied) with an average Cohen’s $K$ value of .70. Due to the small sample size, the dichotomous classification secure versus insecure was used in the analyses.

**Short Portable Mental Status Questionnaire (SPMSQ; Pfeiffer, 1975; Italian version by Verruca et al., 1996).** This is a brief 10-item tool for the screening of cognitive impairment among elderly persons (Pfeiffer, 1975). Besides being implemented to screen for cognitive dysfunction, it has also been widely used as a general measure of cognitive abilities, especially in the prediction of memory performance (Stump, Callahan, & Hendrie, 2001; Welch & West, 1999). The Italian version of this instrument has been shown to detect rates of cognitive impairment compatible to those reported in population-based studies conducted in other countries (e.g., Salemi et al., 2002); moreover, findings have confirmed its predictive validity with respect to different outcomes among Italian elderly people (e.g., Bo et al., 2003; Cataldo, Calcaro, Caputo, & Mammina, 2012). The instrument was administered only to the grandparents to control for their mental health. All grandparents resulted as being within the normal range and no cognitive impairments were detected.

**Results**

**Preliminary Analyses**

The distribution of attachment classifications by each generation and family member is reported in Table 2. The distributions of attachment classifications differed significantly across the three generations, $\chi^2(2, N = 224) = 22.75, p < .001$. Separate contrasts of one distribution with each of the other two showed that the distributions of attachment classifications differed significantly one from the other, $6.05 < \chi^2(1; 96 < N < 160) < 21.06, p < .05$, with an increasing representation of secure cases from one generation to the next. The distributions by each generation were then compared to that of the overall nonclinical Italian sample, irrespective of gender, age, and parenthood (Cassibba et al., 2013). The distribution of the adult offspring was significantly different from the Italian normative group, $\chi^2(2, N = 32) = 14.3, p < .001$, revealing an overrepresentation of secure cases. Parents’ attachment distribution did not differ from the normative group, $\chi^2(2, N = 64) = 0.82, ns$, whereas grandparents’ attachment distribution did, $\chi^2(2; N = 128) = 8.82, p < .01$, because of an overrepresentation of insecure cases.

<table>
<thead>
<tr>
<th>Family member</th>
<th>Secure</th>
<th>Insecure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offspring</td>
<td>27 (84%)</td>
<td>5 (16%)</td>
</tr>
<tr>
<td>Parents</td>
<td>37 (58%)</td>
<td>27 (42%)</td>
</tr>
<tr>
<td>Mothers</td>
<td>19 (59%)</td>
<td>13 (41%)</td>
</tr>
<tr>
<td>Fathers</td>
<td>18 (56%)</td>
<td>14 (44%)</td>
</tr>
<tr>
<td>Grandparents</td>
<td>50 (39%)</td>
<td>78 (61%)</td>
</tr>
<tr>
<td>Maternal grandmothers</td>
<td>15 (47%)</td>
<td>17 (53%)</td>
</tr>
<tr>
<td>Maternal grandfathers</td>
<td>8 (25%)</td>
<td>24 (75%)</td>
</tr>
<tr>
<td>Paternal grandmothers</td>
<td>14 (44%)</td>
<td>18 (56%)</td>
</tr>
<tr>
<td>Paternal grandfathers</td>
<td>13 (41%)</td>
<td>19 (59%)</td>
</tr>
</tbody>
</table>

Third, we verified whether the attachment classifications related to sociodemographic variables. None of the cross tabulations between attachment and gender yielded a significant association between the two distributions, $\chi^2(1, N = 32) = 1.10, ns$. For offspring, $\chi^2(1, N = 64) = 0.64, ns$; parents: $\chi^2(1, N = 128) = 2.10, ns$, or grandparents, respectively. Separate $t$ tests were conducted among each of the five groups (offspring, mothers, fathers, maternal grandmothers, maternal grandfathers, paternal grandmothers and paternal grandfathers) in order to verify whether secure individuals differed from insecure ones regarding age and years of education. No age differences were found between secure and insecure individuals within each group of family members, $-1.16 < t(30) < .99$, all $ns$. With respect to years of education, none of the comparisons reached significance, $-1.29 < t(30) < 2.08$, all $ns$, with the only exception being that between secure and insecure fathers, with the former being more educated than the latter, $t(30) = 2.17, p < .05$. The effect of birth order on attachment was tested among the offspring and yielded no significant relation between the distributions of the two variables, $\chi^2(2, N = 32) = 0.33, ns$. Given that no systematic association was found with the sociodemographic variables, no further control of these variables was considered.

**Main Analyses**

**Transmission across two generations.** The transmission of attachment was tested first across two generations with a series of Cohen’s kappa and a chi-square test of independence. The concordance between maternal and offspring’s attachment representations was found in 75% of the dyads (24 of 32) and was significant, $\chi^2(1, N = 32) = 8.66, p < .01$; the $K$ value was 0.43, $p < .01$, suggesting a moderate strength of association (Landis & Koch, 1977). All secure mothers ($N = 19$) had secure children; of the insecure ones ($N = 13$), 38% had an insecure child and the remaining 62% had a secure one. Conversely, the concordance between fathers’ and offspring’s attachment was found in 66% of cases, although such an association did not approach significance, $\chi^2(1, N = 32) = 3.16, p < .10$, and $K = .25, p < .10$, suggesting a slight association (Landis & Koch, 1977) across the paternal line. With regards to transmission from grandparent to parent in the maternal line, 75% of concordance was found between grandmothers’ and mothers’ attachment representations, $\chi^2(1, N = 32) = 8.72, p < .01$, and $K = .51, p < .01$, suggesting a moderate association across the two generations (Landis & Koch, 1977). More specifically, all but 2 secure grandmothers had a secure daughter, whereas 65% (11 of 17) of the insecure grandmothers had an insecure daughter. Instead, 59% of the grandfather–mother dyads had concordant attachment classifications and this association did not approach significance, $\chi^2(1, N = 32) = 3.49, p < .10$, and led to a $K$ of .26, $p < .10$, suggesting a fair association (Landis & Koch, 1977).

Transmission across the paternal line followed the same trend: we found a significant and moderate correspondence between grandfathers’ and fathers’ attachment classifications, $\chi^2(1, N = 32) = 8.78, p < .01$, and $K = .51, p < .01$. More specifically, continuity was found among 75% of the dyads (24 of 32); all but two secure grandmothers had a secure son, whereas 67% (12 of 18) of the insecure grandmothers had an insecure son. Correspondence between grandfathers’ and fathers’ attachment was found among
66% of the dyads, although this did not reach significance, $\chi^2(1, N = 32) = 3.80, p < .10$, and led to a $K$ value of .33, $p < .10$, suggesting a fair association (Landis & Koch, 1977).

**Transmission across three generations.** Following the procedure implemented in previous studies (Benoit & Parker, 1994), the transmission of attachment across three generations was tested through a log-linear analysis by employing a hierarchical backward elimination method: this procedure begins with the maximum number of terms, that is, the saturated model, then drops a term in each round in order to achieve the most parsimonious model that provides the best fit for the data. Among the grandmother–mother–offspring triads, 56% ($N = 18$) presented concordant attachment classifications, of which 41% ($N = 13$) were secure triads and the remaining 15% ($N = 5$) were insecure. Results showed that the model with two interaction effects, Mothers Attachment $\times$ Offspring Attachment and Grandmother Attachment $\times$ Mother Attachment was the best fitting the data, and no significant differences between the predicted and observed values of each cell were found, likelihood ratio $\chi^2(2, N = 32) = 2.17, ns$. This model implies that the grandmother’s attachment classification has a significant impact on the mother’s attachment classification, partial $\chi^2(1, N = 32) = 4.40, p < .05$, and that the mother’s attachment classification has a significant impact on the offspring’s attachment classification, partial $\chi^2(1, N = 32) = 5.44, p < .05$. Thus, any correspondence between grandmother and infant was significantly mediated through maternal attachment representations (second generation).

By contrast, the transmission of attachment across three generations appeared interrupted in grandfather–mother–offspring triads. Concordant attachment classifications were only found among 38% ($N = 12$) of them, 22% of which were secure triads ($N = 7$), and the remaining 16% ($N = 5$) were insecure. The model with the best fit to the data only included the interaction effect Mother Attachment $\times$ Offspring Attachment, likelihood ratio $\chi^2(3, N = 32) = 1.02, ns$. Such a model implies only a significant impact of mother’s attachment classification on the offspring’s attachment classification, partial $\chi^2(1, N = 32) = 8.26, p < .01$.

Regarding the transmission of attachment across three generations in the paternal line (grandmother–father–offspring triads), continuity was found among 47% of the triads ($N = 15$): 34% ($N = 11$) of them were secure and the remaining 13% were insecure ($N = 4$). The complete hierarchical backward elimination analysis yielded a best-fitting model that included only a significant interaction effect Grandfather Attachment $\times$ Father Attachment, likelihood ratio $\chi^2(2, N = 32) = 5.58, ns$. Thus, the model best describing the data implies no other effect than that of grandmothers’ attachment on the father’s attachment, partial $\chi^2(1, N = 32) = 8.10, p < .01$. Continuity across three generations was found among 41% ($N = 13$) of the grandfather–father–offspring triads, 28% ($N = 9$) of which were secure and 13% ($N = 4$) were insecure. All the remaining 59% triads ($N = 19$) were characterized by a lack of correspondence of attachment classifications. None of the two or three way interactions adequately explained the data, with the only exception being a marginally significant interaction effect of Grandfather’s Attachment $\times$ Father’s Attachment, partial $\chi^2(1, N = 32) = 3.07, p < .10$. The likelihood ratio of the model including such interaction resulted in a marginally significant value, $\chi^2(3, N = 32) = 6.82, p < .10$, suggesting a discrepancy between the model and the data, as confirmed by standardized residuals of the expected frequencies with values $> 1.96$.

Overall, results show that the transmission process is interrupted along the grandfather–father–offspring lines.

**The match/mismatch of parents’ security in relation to offspring’s attachment.** In order to test the influence of the concordance between parents’ security on offspring’s attachment, all couples of first and second generation were divided into three groups: those with both secure parents; those with one secure parent (e.g., mother secure-father insecure or mother insecure-father secure) and those with both insecure parents. The distributions of the three couples were then cross-tabulated with the distributions of their offspring’s attachment and the Fisher exact probability test was used to test whether there was an association between the two distributions. With regards to the transmission of attachment from parents to offspring, couples’ security was significantly associated with that of the offspring ($p < .001$; Fisher’s exact test). All couples with both secure parents had a secure offspring. All couples, but one, with both insecure parents had an insecure offspring. All couples, but one, with one secure and one insecure parent had a secure offspring (see Table 3). The number of secure parents was then treated as a continuous variable, with 0 indicating no secure parents, 1 having 1 secure parent and 2 having both secure parents, in order to predict the likelihood to develop a secure attachment given 2, 1 or no secure parents. Results of a logistic regression analysis showed that the odds of offspring developing a secure attachment improved by 66.05, 95% confidence interval (CI) [3.52, 1238.72] for each secure parent they had, $\chi^2(1) = 15.01, p < .001$; Nagelkerke pseudo-$R^2 = .65$.

The same tests were repeated on the transmission from grandparents to parents on the maternal and paternal lines. The match of maternal grandparents’ security was significantly associated with the distribution of mothers’ attachment ($p < .01$; Fisher’s exact test): all couples but one having both secure (grand)parents had a secure daughter, whereas three quarters of the couples had both insecure (grand)parents had an insecure daughter. All couples but one with one secure and one insecure (grand)parent had a secure daughter (see Table 3). Results of a logistic regression analysis showed that the odds of mothers developing a secure attachment improved by 7.23, 95% CI [1.67, 31.17] with each secure parent they had, $\chi^2(1) = 10.63, p < .001$; Nagelkerke pseudo-$R^2 = .38$.

A significant association was also found between the distribution of paternal matched/mismatched grandparents’ security and fathers’ attachment ($p < .01$; Fisher’s exact test): all couples but one with both secure (grand)parents had a secure son, whereas more than three quarters of those with both insecure (grand)parents had an insecure son. About three quarters of the couples with one secure and one insecure (grand)parent had a secure son (see Table 3). Results of a logistic regression analysis showed that the odds of fathers developing a secure attachment improved by 5.70, 95% CI [1.67, 19.98] with each secure parent they had, $\chi^2(1) = 10.47, p < .001$; Nagelkerke pseudo-$R^2 = .37$.

Last, we focused our attention on the total number of cases along the three generations with mismatches in parents’ security and a secure offspring ($N = 34$): as shown in Table 3, 68% of the cases had a secure mother, and the remaining 32% had a secure

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1 The Fisher exact probability test was performed because the expected cell frequencies were too low for chi-square analyses to be performed.
Table 3
The Match, Mismatch, and Type of Mismatches of Parents’ Security by Offspring Attachment at the First and Second Generation

<table>
<thead>
<tr>
<th>Match/mismatch parents’ security</th>
<th>Offspring’s attachment</th>
<th>Fathers’ attachment</th>
<th>Mothers’ attachment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Secure (N = 27)</td>
<td>Insecure (N = 5)</td>
<td>Secure</td>
</tr>
<tr>
<td>Secure-secure</td>
<td>10 (100%)</td>
<td>0 (0%)</td>
<td>7</td>
</tr>
<tr>
<td>Standardized residuals</td>
<td>.5</td>
<td>-1.3</td>
<td></td>
</tr>
<tr>
<td>Secure-insecure</td>
<td>16 (94%)</td>
<td>1 (6%)</td>
<td>1</td>
</tr>
<tr>
<td>Standardized residuals</td>
<td>.4</td>
<td>-1.0</td>
<td></td>
</tr>
<tr>
<td>Secure mother–insecure father</td>
<td>9</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Insecure mother–secure father</td>
<td>7</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Insecure–insecure</td>
<td>1 (20%)</td>
<td>4 (80%)</td>
<td>-1.6</td>
</tr>
<tr>
<td>Standardized residuals</td>
<td>-1.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion

The aim of the study was twofold: first, to test the transmission of attachment patterns across two generations (parent–offspring) and three generations (grandparent–parent–offspring), by including assessments belonging not only to the maternal line (grandmother–parent–offspring triads), but also to those of the paternal line. Second, to test whether the match or mismatch of parents’ security made a difference in the prediction of the offspring’s attachment classification.

As to the first aim, results went in the predicted direction: both when we considered transmission from the first to the second and from the second to the third generation, the process resulted as being stronger in the presence of a female caregiver (either mother or maternal/paternal grandmother). The strength of the correspondence is in line with that reported by the other two studies on AAI correspondence across two generations along the maternal line in low risk samples (Benoit & Parker, 1994; Scharf et al., 2012). Conversely, although we found a consistent correspondence between the attachment classifications of male caregivers and their children, ranging from 59% to 66%, such a continuity never reached significance.

The continuity across three generations was confirmed only in the presence of two female caregivers (grandmother to mother to offspring): in such a case, the model best fitting the data suggested a mediated transmission, so that any impact of the grandmother’s attachment on the offspring’s attachment was mediated through the mother. Conversely, the transmissions across three generations with only one or no female caregiver were not confirmed. The results supporting the transmission along three generations in the maternal line provide support for a basic prediction of attachment theory: the caregiver’s mental representations of attachment is expected to influence parenting behavior which, in turn, affects the quality of the attachment relationship with the child (Bowlby, 1973; Main et al., 1985). To our knowledge, only two studies have investigated the continuity of attachment across three generations, reporting percentages of correspondence across the three generations lower than that which we found in the maternal line; moreover, these two studies included infants instead of adult children (Benoit & Parker, 1994; Hautamäki et al., 2010). Conversely, ours is the first study testing the correspondence between the state of mind with respect to attachment of adults belonging to three generations: besides the advantage of assessing the same construct by means of the same instrument across all generations, which makes it possible to reduce measurement error considerably, our findings also make a contribution to extending current knowledge on the transmission process. In fact, by testing transmission to adult offspring rather than infants or young children, we are able to provide support for the continuity of attachment on a time span wider than that considered by existing studies. Our findings are in line with those of Verhage and colleagues’ (2016) meta-analysis, showing that the strength of the association between attachment representations and caregiver–child attachment increases as children grow older; nevertheless, such meta-analytic evidence is only based on the transmission across two and not three generations.

Relevant to the issue of time, is Barbaro, Boutwell, Barnes, and Shackelford’s (2016) commentary to Verhage’s et al.’s (2016) meta-analytic findings, according to which research on the intergenerational transmission of attachment has privileged the investigation of the shared environmental effects (particularly in infancy). By ignoring the role of nonshared influences, which emerge over time in development, they state that the conclusions about the existence of an intergenerational continuity of attachment might be biased. Indeed, our study, although not providing a direct test of shared and nonshared influences, shows that the effects of the shared environment persist later on in development, way beyond infancy and early childhood, in a stage of life when all members have been fully exposed to nonshared environmental influences.

We also show that relational history with mothers has a stronger influence than that with fathers in the development of a child’s mental representations regarding attachment. Such a conclusion is quite intriguing if we consider that these representations are thought to be built upon the relational history with both parents;
nevertheless, attachment research thus far has not disentangled the issue of whether one parent contributes more than the other to the quality of these representations or, alternatively, if mothers and fathers (and/or other caregivers) have an equal probability of influencing children’s mental representations.

Overall, our findings seem to suggest that female caregivers are more invested than males in caregiving the offspring, as their models drive the intergenerational continuity, which is weakened or even interrupted when male caregivers are considered. Both evolutionary and proximate mechanisms associated with parental investment might be invoked to understand this difference. Geary (2000) highlighted the evolutionary mechanisms leading female and male mammals to achieve reproductive success through different strategies, being the firsts highly invested in the parental role and the seconds focused mainly on mating effort. Nevertheless, this expectation is not quite confirmed among the human species. Paternal investment is facultatively expressed: the level and nature of the investment in the parental role among humans can be understood only taking into account a variety of proximate conditions, ranging from genetic to cultural ones, which may have resulted in a relative shift of human males’ reproductive effort from mating to parenting effort and in a great variability of paternal care throughout human evolution (Geary, 2000). Recently, neurobiological evidence has confirmed and integrated the evolutionary perspective: first, both mothers and fathers are consistent in their brain responses to infant stimuli. This evidence shows that they are both provided by evolution with a global parental caregiving brain network (Abraham et al., 2014) functional to promptly react to the infant’s needs in order to increase its survival (Atzil, Hendler, Zagoory-Sharon, Winetraub, & Feldman, 2012; Feldman, 2016). At the same time, Abraham and colleagues (2014) also found differences in caregivers’ brain responses: primary caregiving mothers showed higher subcortical activation, as a confirmation of the phylogenetically ancient role of maternal care. Conversely, secondary-caregiving fathers exhibited greater activation of later-developing prefrontal temporo-parietal circuits involved in sociocognitive understanding and, intriguingly, in primary-caregiving fathers both of these networks were activated. Altogether these findings confirm the facultative expression of parental care and show that the flexibility of the human parental brain enables fathers to establish the neurobiology of parenting via cortical tuning to infant needs and day-by-day involvement in active caregiving (Feldman, 2016). Thus, proximate conditions, here included ecological constraints, must be taken into account to understand the degree of paternal investment (Geary, 2000; Feldman, 2016). With this respect, the consideration of the ecological specificities of the culture to which our sample belongs might contribute to the understanding of our findings, besides the potential role of evolutionary-based differences between female and male caregivers. Existing findings (Bombi et al., 2011) show that Italian mothers might have more impact on their offspring’s development because they are more involved in caretaking duties and have more daily contact and opportunities to interact with their children compared to fathers, both in childhood and adolescence; moreover, Italian young adolescents say they find it easier to communicate their worries and intimate thoughts to their mothers than with their fathers (Cavallo & Santinello, 2004).

It might be that the proximate conditions influencing the degree of fathers’ parental investment, pertain not only the cultural but also historical specificities, that is, the caregiving practices prevailing in Italy in the late Nineties, when the adult offspring taking part to the study grew up. According to the demographic data released by the National Institute of Statistics, this historical period was particularly characterized by an imbalance between Italian mothers and fathers in caregiving duties and responsibilities, especially in the southern regions of Italy (ISTAT, 2006). Nowadays Italian fathers are increasingly involved in caretaking and recent findings conducted on Italian families show that fathers’ support and involvement plays an important role in adolescents’ psychosocial adjustment and wellbeing and prevents them from engaging in risk behaviors (Attili et al., 2011; Graziano et al., 2009; Marta, 1997; Pace et al., 2012). Therefore, further investigations should verify whether the transmission process among Italian families with younger children growing up today leads to a picture which is different from that outlined by our data.

An alternative explanation could apply to the weaker correspondence between fathers’ and offspring’s AAI classifications, when compared to the stronger correspondence between mothers’ and offspring’s AAI classifications: as the offspring sample includes a majority of girls, the weaker transmission process across the paternal line might reflect changes in father-daughter relationships in young adulthood. In fact, findings show that fathers tend to be more engaged with their sons, have less contact with their daughters and generally have more a distant relationship with them than mothers do (Hosley & Montemayor, 1997; Russell & Saebel, 1997). At the same time, young adult daughters consistently report being closer to their mothers than to their fathers and also consider fathers as less central in their lives (Langford, Lewis, Solomon, & Warin, 2001). Furthermore, they perceive their fathers as significantly less empathetic, involved and also more judgmental of their daughter’s characteristics than mothers (Dixon, Gill, & Adair, 2003).

As to the test of the second aim, the findings show that, independently of which generations we consider in the transmission process, experiencing two secure parents increases the likelihood of developing a secure state of mind with respect to attachment. Likewise, having one secure parent rather than none also increases the chances of developing a secure state of mind regarding attachment. Such a trend may explain why we also found an increasing incidence of secure cases from one generation to the next. Verhage and colleagues (2016) suggest different possible factors to explain discontinuity in the transmission of insecure attachment; among these, the protective role played one’s partner’s security. This claim is based on existing findings showing that mismatches in attachment representations occur frequently in partner selection (Owens et al., 1995) and that the quality of the attachment relationship that children develop with each parent can be discordant (Fox, Kimmerly, & Schafer, 1991; van IJzendoorn & De Wolff, 1997). Following this suggestion, the authors encourage future investigations to highlight which mechanisms might explain inter-generational discontinuity. Our study contributes to disentangle this issue as the findings show that in couples with discordant attachment classifications, the presence of one secure parent acts as a protective condition to promote security in the next generation by providing the child opportunities to compensate for the insecure attachment bond with the other caregiver. Coherently with that which we suggested previously, it might be that the experience of a secure partner enhances the quality of marital interaction and
thus the ability to cope with caregiving demands in a sensitive and responsive way (Attili et al., 2012). Very few studies have attempted to integrate the family system approach with the attachment framework (Cowan & Cowan, 2009), but the few findings available are in line with these suggestions and show that an individual’s attachment security enhances the quality of a couple’s interactions and marital satisfaction, which it turn predict the quality of parenting and children’s outcomes, although some differences exist between mothers and fathers (Attili et al., 2012; Cowan, Cowan, & Mehta, 2009). Our findings also show that the likelihood of offspring belonging to mismatched couples developing secure attachment representations might depend on which parent is the secure one, as we found that such a favorable outcome was more likely in the presence of a secure mother, rather than a secure father. This finding provides additional support for the imbalance between mothers and fathers in caregiving investment, which could depend on both evolutionary mechanisms as well as on cultural features of our country in the past decades, as discussed above.

Some limitations of the study should be addressed. First, the small sample size only allowed us to explore the transmission process by using the AAI dichotomous classification system, and not the three and four-way classification systems. Second, because of the characteristics of the sample, we should be careful not to generalize our conclusions: besides the fact that the results might reflect cultural and historical specificities, as discussed above, ours is a low-risk sample with offspring all attending college university studies in psychological sciences. As this is the first exploratory study on the AAI three-generation-transmission, a low-risk sample was chosen in order to maximize the possibility of observing continuity in attachment development (Gloger-Tippelt, Gomille, Koenig, & Vetter, 2002). Other studies on the intergenerational transmission of attachment have highlighted that transmission is a function of the stability of the family environment in that the greatest concordance has been found in middle-class and stable samples characterized by a less dangerous and stressful family context (e.g., Arnott & Meins, 2007; Benoît & Parker, 1994; Hautamäki et al., 2010). Last, the study left unexplored the role of factors other than parents’ attachment representations that might have influenced the offspring’s state of mind with regarding attachment: as Bowlby (1973) underlined, early interactions with caregivers are formative, but the working models of attachment might be continually revised in the light of an individual’s ongoing experiences, events and relations (Barbaro et al., 2016; Weinfield et al., 2000) and correspond to later attachment representations. This is a critical issue especially in face of the cases of intergenerational discontinuity, which occurred in roughly 40% or more of the triads in our sample, depending on which caregiver was considered. Such high rate of discontinuity confirms the need to adhere to a complex picture of possible moderating factors that may intervene to mitigate or interrupt the intergenerational transmission across two and three generations (Verhage et al., 2016).

In conclusion, further research should attempt to investigate the correspondence of attachment representations along generations on diverse samples, by also considering possible factors, either individual, relational or contextual, which may promote, over the life span, the reorganization of an individual’s attachment representations. Particularly relevant for the practical implications, is the investigation of (dis)continuity among at-risk families (i.e., in the presence of marital conflict, poverty) in order to highlight possible protective and risk factors in the intergenerational process which could be targeted by intervention. Last, the recruitment in the future of a larger sample will allow to run a multivariate test in which each pathway is tested against the others: such test, besides allowing to deal with the issue of the independence of the measures, could certainly represent a straightforward test of the differential transmission hypothesis.

References


