Late-adopted children grown up

Abstract

This paper reports on a long-term follow-up of a longitudinal study conducted in Italy that assessed attachment patterns of late-adopted children (placed between 4 and 8 years old) and their adoptive mothers, in three phases: T1, at placement; T2, in childhood (7 to 8 months after adoption); and T3, in adolescence (current study). The following hypotheses were tested: 1) children' IWMs will shift from insecurity towards security in a long-term follow-up; and 2) there will be a significant association between adoptees' and adoptive mothers' IWMs in adolescence. Participants were 22 late-adopted adolescents (aged 11-16) and their adoptive mothers, all assessed in previous phases. Participants completed several measures of attachment, including the Separation-Reunion Procedure (T1, T2), Manchester Child Attachment Story Task (T2), Friends and Family Interview (T3), and Adult Attachment Interview (T1, T3). Late-adopted adolescents showed both an increase in attachment security and a decrease in disorganized attachment from childhood to adolescence. Adoptive mothers' (T1 and/or T3?) secure states of mind were associated significantly(?) to their adopted children attachment security in adolescence. These findings reinforce the importance of taking attachment into account for adoptive families from the beginning of adoption.

Keywords: adoption, attachment representations, adolescence, longitudinal study, Friends and Family Interview (FFI)

Introduction

Stability and change of attachment patterns have always been challenging topics for attachment researchers. Whereas it is widely agreed that attachment representations, in terms of Internal Working Models (IWMs; Bowlby, 1973), are structured from early childhood by attachment relationship with primary caregivers, it is still debated whether these representations remain

stable across the lifespan (Groh et al., 2014; Hodges, Steele, Hillman, Henderson, & Kaniuk, 2005; Pinquart, Feußner, & Ahnert, 2013; Verhage et al., 2016).

Bowlby (1973) originally claimed that, in conditions of high environmental stability, IWMs' security – or insecurity – shows continuity across developmental stages, fluctuating in correspondence with significant life changes. Several studies highlighted the discontinuity of attachment between childhood and adolescence, as this is a time of life with strong psycho-physical modifications associated with a normative reorganization in the attachment system (Groh et al., 2014; Pinquart, et al., 2013; Vaughn et al., 2016). However, there is also empirical support for the continuity of secure IWMs in non-stressed environments, such as with caregivers having secure attachment states of mind. These are able to provide high quality caregiving and sensitivity -known as the ability to accurately perceive and interpret the child's communications and to respond in a proper and attuned way (Ainsworth, Bell & Stayton, 1974; Schoenmaker et al., 2015)- which are the key features in the construction and stability of secure attachments from infancy to adolescence (Fearon, Shmueli-Goetz, Viding, Fonagy, & Plomin, 2014; Jones et al., 2017). As suggested in a recent meta-analysis (Verhage et al., 2016), such parental characteristics could enable children to shift from insecure attachment representations towards earned security when the development of secure representations from early infancy is prevented.

Adopted children, especially late-placed ones (Piermattei, Pace, Tambelli, D'Onofrio & Di Folco, 2017), are assumed to be more at risk of developing insecure or disorganized attachments, due to adverse experiences such abandonment, loss, neglect, abuse, maltreatment in their family of origin or institutions. However, as above mentioned, positive experiences with adoptive parents could enable them to shift their insecure or disorganized IWMs towards security (Pace, Zavattini & D'Alessio, 2012; Steele et al., 2008). Consistent with Bowlby's (1973) notion that changes in the developmental trajectory of attachment are always possible

and can be elicited by significant life-events, adoption can be defined as a "natural experiment" (Van IJzendoorn & Juffer, 2006) and perhaps the most radical intervention possible in a child's life. Correspondingly, there is some significant evidence of positive change in attachment toward security in adopted children compared with peers in foster and residential care (Lionetti, Pastore, & Barone, 2015; Quiroga, Hamilton-Giachritsis, & Fanés, 2017). But the older a child is at the time of adoption, the more challenging positive change appears to be.

Attachment pathways in adoptive families

In a meta-analysis, van den Dries, Juffer, van IJzendoorn, and Bakermans-Kranenburg (2009) did not find differences in attachment security between children who grew up with their birth-families and those who were adopted before 12 months (early-adopted), whereas children adopted after 12 months (late-adopted) were more at risk of developing a disorganized attachment (d = .36) or lower attachment security (d = .80) than non-adopted peers. Across several studies late-adopted children consistently showed higher rates of disorganization or insecurity in both attachment representations and behaviors (Hodges et al., 2005; Pace, Cavanna, Velotti & Zavattini, 2014; Pace, Zavattini, & Tambelli, 2015; Rutter & O'Connor, 2004; Steele, Hodges, Kaniuk, & Steele, 2010; Vorria et al., 2006).

However, longitudinal studies suggested that after some time following adoption a large number of adopted children are likely to "earn" security, especially when placed with adoptive parents showing high quality caregiving, linked to secure states of mind with respect to their own attachment experiences (Barone, Lionetti, & Green, 2017; O'Connor et al., 2000; Pace, D'Onofrio, Guerriero & Zavattini, 2016; Rutter et al., 2007; Steele et al., 2010). In the Greek Metera longitudinal study (Vorria et al., 2006), 61 previously institutionalized late-adopted children showed less security in attachment and more disorganization or avoidance than their non-adopted peers, both at baseline and 2 years after adoption. However, by assessing their IWMs with a story completion task over this time period, it was shown that the

institutionalized group shifted from insecurity towards security, especially those who were classified as disorganized at baseline. In the English and Romanian Adoptees Study (ERA; O'Connor et al., 2000), 48 late-adopted children showed a decrease of attachment disorder symptoms 2 years after placement and this reduction continued for 7 years after the adoption, through their follow-up assessment at 11-years of age (Rutter et al., 2007; Rutter & O'Connor, 2004). In the adoption study conducted at the Anna Freud Center (Hodges et al., 2005), 63 late-adopted children who were administered a doll-play story completion task, showed higher disorganization, aggression, and avoidance in their IWMs at placement, representing parents as more unaware or dangerous in their stories compared to early-adopted children. One year later, all of these late-adopted children showed increases in their representations of parents as more helpful and responsive. However, significant decreases in negative themes, including aggression and disorganization, diminished *but only* for those adopted children who had been placed with adoptive parents, either mother and/or father, who showed autonomous-secure states of mind in response to the Adult Attachment Interviewer (AAI) at placement (Steele et al, 2008). In other words, children can take on new positive representations of current experience but older adverse experiences may still remain, unless there is 'secure' adoptive parent in the child's life to gently help adopted children let go of their negative thoughts and feelings about their adverse histories. Independent corroborating evidence comes from a brief longitudinal study, a significant increase in the security of attachment behaviors of 28 late-adopted 7 to 8 months after placement was found (Pace & Zavattini, 2011; Pace et al., 2012). Furthermore, children who presented this change were predominantly placed with secure-autonomous adoptive mothers in the AAI. Although the association of attachment between adoptive mothers and their children was not statistically significant, it showed a significant increase over a period of 7 to 8 months.

Attachment in adoptive adolescence: differences with childhood and parental role

Some adoption studies extended their investigation to adolescence, reporting results that do not completely match those in childhood (Beijersbergen, Juffer, Bakermans-Kranenburg, & van IJzendoorn, 2012; Escobar & Santelices, 2013; Groza & Muntean, 2016; Molina, Casonato, Ongari, & Decarli, 2015; Vorria, Ntouma, & Rutter, 2015). Adopted adolescents who were assessed using attachment interviews showed secure attachment representations between 32% and 63%, and only two studies reported disorganized classifications (6 to 8%, Molina et al., 2015; Vorria et al., 2015).

Two longitudinal adoption studies (Beijersbergen et al., 2012; Vorria et al., 2015) did not find any significant differences in the attachment distribution when comparing non-adopted and adopted adolescents. Disorganized children showed significant changes towards secure classifications in adolescence, thus adoptees may earn security in their IWMs after several years and not only in the first period post-adoption. Instead, secure attachment showed stability over time both in adoptees and biological peers (Vorria et al., 2015). Moreover, Beijersbergen and colleagues (2012) highlighted the relevance of maternal sensitivity in predicting both the change from insecurity in infancy to security in adolescence and the continuity of secure attachment from infancy to adolescence in 125 early-adopted children.

The role of parental attachment seems to remain significant into the experience of the adopted adolescence, just as it does in adolescents living with birth parents. Pace and colleagues (Pace, Di Folco, Guerriero, Santona & Terrone, 2015) found a significant concordance of 70% (two-ways, p = .04) and 61% (four-ways, p = .08) in attachment representations between 46 late-adopted adolescents, assessed with…., and their mothers, assessed with ….. Two studies from the Attachment and Adoption Research Network (AARN) reported significant concordances between secure IWMs in 90 adolescents, assessed with the FFI?, and positive and coherent attachment representations in parents, assessed with the AAI? (Groza & Muntean, 2016; Molina et al., 2015).

As adolescence elicit normative and remarkable cognitive, physical, and relational changes, presumably eliciting discontinuity in IWMs, presented study was designed to investigate the possible change in attachment of late-adoptees from childhood to adolescence alongside with the role played by maternal IWMs in this process.

Research design and objectives

Presented study is an adolescent follow-up of a longitudinal study on late-adopted children and their adoptive mothers and includes three phases of data collection from adoption to adolescence (see Table 1):

(1) The first phase (T1 - childhood) was at the beginning of the adoption (about 40 days after placement), when the influence of children's previous adverse experiences was likely still active.

(2) The second phase (T2 - later childhood) occurred six months after the first one (7 to 8 months after placement).

(3) The third phase (T3 - adoptees' adolescence) occurred 5.5 to 8 years after placement when the children were between 11 and 16 years old. In this report, we present the results concerning this third phase, which relates to previous findings (Pace et al., 2012).

PLEASE INSERT TABLE 1

The first objective was focused on the change in adoptees' attachment patterns from childhood to adolescence. We hypothesized a shift from insecure attachments, as assessed at the beginning of adoption (T1) and 7 to 8 months later (T2), towards secure attachments, evaluated when the late-adopted children were adolescents (T3).

Our second objective was to investigate the association of attachment patterns between late-adopted adolescents and their adoptive mothers. We hypothesized a significant association

between secure/insecure attachments of late-adopted children and their adoptive mothers in adolescence, alongside with an increased concordance of mother-child attachment representations from the beginning of adoption in T1 to the long-term follow-up at T3.

Method

Participants

The eligibility criteria in this follow-up were the following: adoptees were assessed in adolescence, children were at least 4 years old at placement and the length of placement was equal to a minimum of 4 years (considering this as a sufficient length of time for stabilizing adoptive child–parent relationships; van den Dries et al., 2009), children had no special needs, parents had a medium-to-high education level, married couples were still living together, and families were living in urban contexts.

Participants were 22 late-adopted adolescents (11 to 16 years old, M_{age} = 13.1, SD = 0.9) and their 15 adoptive mothers (45 to 59 years old, M_{age} = 51.4, SD = 4.6). There were fewer mothers than children because some were adopted siblings. These participants were previously assessed in T1 and T2, when participants were 29 late-adopted children (4 to 8 years old, 52% female) and 20 adoptive mothers. From T1/T2 to T3, an attrition rate of 24% (n = 7) occurred due to lack of time for adolescents to attend (n = 2), inability to contact the family (n = 2), interruption of contact with adoption services (n = 1), serious illness in one child and in one mother. We tested the homogeneity of the sub-sample of participants in this follow-up (T3, n = 22) with the original sample (T1-T2, N = 29), comparing the groups in sex, age and all the eligibility variables and we did not find any significant differences (all p between .09 and .78).

Adolescents were placed for adoption between 4 and 8 years of age (M = 5.36, SD = 1.18) and lived with their adoptive parents for at least 5 years (M = 6.82, SD = .91). Most adoptees (n = 19, 86%) came from international adoptions (32% South America, 32% East

Europe, 13% Asia and 9% Africa), but they did not show any significant differences compared to domestically adopted children in the eligibility and control variables (all p between .51 and .65). Before the adoption, 91% of adoptees had been institutionalized and 73% lived through adverse experiences in their birth-family, such as abandonment, neglect, and maltreatment.

The volunteer adoptive families lived in the center of Italy and were recruited through authorized international adoption agencies and the social-health services for adoption.

Measures[1]

Late-adoptees.

Childhood. At T1 and T2, the laboratory observational *Separation-Reunion Procedure* (SRP; Main & Cassidy 1988) was used to classify the attachment behaviors of late-adopted children into four categories: Secure (B), Avoidant (A), Ambivalent (C), and Disorganized (D). The categories were coded according to two scales: Security and Avoidance (Cronbach's α in T1 = .85 and T2 = .85). At T2, the *Manchester Child Attachment Story Task* (MCAST; Goldwyn, Stanley, Smith, & Green, 2000), a video-taped doll-play vignette completion, was used to classify the verbal representations of late-adopted children into the same four categories and also to rate their levels of Disorganization, Mentalizing, and Coherence of mind (Cronbach's α = .85). Both the SRP and the MCAST showed concurrent validity with the maternal AAI and other children behavioral measures of attachment (Solomon & George, 2016). The children' nonverbal and verbal cognitive status was assessed through the *Leiter International Performance Scale - Revised* (Leiter-R; Roid & Miller, 1997) at T1 and the *Peabody Picture Vocabulary Test - Revised* at T2 (PPVT-R; L.M. Dunn & Dunn, 1981).

Adolescence. The attachment representations of adolescents were assessed at T3 using

[1] Measures used in T1 and T2 will be briefly described, for any further information see Pace et al., 2012.

the *Friends and Family Interview* (FFI; Steele, Steele, & Kriss, 2009; Italian version, authorized by Howard Steele). The interview is composed of 27 questions investigating representations of the self, favorite teacher, best friend, and family's members. The interview provides an overall attachment classification, based on the highest score achieved from applying four dimensional scores, one for each of the following patterns: (1) *Secure*: the person's narrative reflects flexibility, easiness, and ability to turn to others for support when in distress (S); (2) *Insecure-Dismissing*: the person uses derogation or idealization as a defense and shows restriction in the acknowledgment or expression of distressing feelings (Ds); (3) *Insecure-Preoccupied*: the person is rated highly in anger or passivity (P); (4) *Insecure-Disorganized*: the person shows some lapses in monitoring or reasoning as well as contradictory or incompatible strategies in attachment narratives (D). The FFI coding system also includes the following verbal scales[2]: (1) Coherence, based on Grice's maxims of good conversation (truth, economy, relation, and manner, plus overall coherence); (2) Reflective Functioning (developmental perspective, theory of mind, and diversity of feelings); (3) Evidence of Secure Base (father, mother, and other significant figure); (4) Evidence of Self–Esteem (social competence, school competence, and self-regard); (5) Peer Relations (best friendship frequency and quality of contact); (6) Sibling Relations (warmth, hostility, and rivalry); (7) Anxieties and Defense (idealization, role reversal, anger, derogation, and adaptive response); and (8) Differentiation of Parental representations. Every scale and classification were scored on a 7-point scale from 1 to 4, including mid-points (1 = *no evidence*; 2 = *mild evidence*; 3 = *moderate evidence*; 4 = *marked evidence*). This double coding system allows both a categorical and dimensional evaluation of attachment representations. Attachment classifications obtained by administering the FFI to adolescents from a community sample

[2] The two non-verbal scales of the FFI coding system (Fear/Distress and Frustration/Anger) were not coded for in this study.

showed concurrent validity with the maternal AAI classifications, as well as longitudinal prediction of the *Strange Situation Procedure*'s classifications in infancy (Steele & Steele, 2005). The interview showed inter-country invariance in internal consistency (Cronbach's α = .83) (Stievenart, Casonato, Muntean, & Van de Schoot, 2012), in line with findings from this study (Cronbach's α = .84). Two blinded and reliable raters coded 14 of the 22 interviews (63%), and one of them coded the remaining eight FFI transcripts. Inter-rater agreement was 100% (k = 1, $p < .001$) on the four-way classification system (S, Ds, P, and D). Spearman's rho correlations for the five coherence scales ranged from .66 for the relation scale ($p < .05$) to .86 for the manner scale ($p < .01$).

Verbal IQ in adopted adolescents was assessed with the verbal *Wechsler Intelligence Scale for Children – III edition* (verbal WISC-III; Wechsler, 1991) consisting of the following subtests: information, similarities, arithmetic reasoning, vocabulary, comprehension (CV), and memory figures. It can be administered to children aged between 6 and 16 years and 11 months. The inter-rater reliability for the verbal IQ subtest was excellent (.92) and the internal consistency of the indices ranged from .80 to .97. Reliability for the Italian version ranged between .91 and .96, showing correlations with both the scores on Leiter-R (k between .77 and .80) and on the PPVT-III (k ranged from .82 to .92).

Adoptive mothers.

A *socio-demographic sheet* was developed ad hoc for this research and completed by adoptive mothers twice, in T1 and T3. At T1 it collected detailed information about parents and the adopted children (pre-adoption history, age at arrival, original country, type and length of adoption, etc.). At T3, the part on adoption data was replaced by a more accurate survey of the current state of the adoptive family.

The *Adult Attachment Interview* (AAI; Main, Goldwyn, & Hesse, 2008), was used at T1 and T3 to evaluate maternal states of mind with respect to their early attachment experiences.

The semi-structured interview, consisting of 20 questions, was audio recorded, verbatim transcribed, and coded on 17 nine-point ordinal scales (Loving, Rejection, Neglecting, Role Reversal, Pressure to Achieve, Idealization, Anger, Derogation, Global Derogation, Lack of Memory, Passivity, Transcript Coherence, Coherence of Mind, Metacognitive Monitoring, Fear of Loss, Unresolved Loss and Unresolved Trauma) leading to the following classifications: *Secure-Free/Autonomous (F/A)*, *Dismissing (Ds)*, *Entangled-Preoccupied (E)*, *Unresolved/disorganized (U)*, or *Cannot Classify (CC)*. The AAI is one of the most widely used measures for studying attachment representations in adulthood. In an Italian meta-analysis, the AAI has shown a test-retest stability from 70% (three-ways) to 95% (secure-insecure) over a period of 4 years (Cassibba, Sette, Bakermans-Kranenburg, & van IJzendoorn, 2013).

In the current study, all the AAIs were coded by a reliable coder and 10 interviews (67%) were also classified by another expert and double-blinded rater. Inter-rater agreement was 88% (k = 0.77, p < .01) for the four-way classification (F, Ds, E, and U). The Cronbach's α for internal consistency was .81 in T1 and .80 in T3.

Procedure

At the beginning of the study and for the current phase, participant mothers (for themselves) and fathers (to authorize children's participation) signed a written informed consent form for data management and protection. Each session lasted approximately an hour and a half and was conducted in the laboratories of Sapienza University of Rome. Mothers and children were interviewed separately. The research was approved by the Ethics Committee for research at Sapienza University of Rome.

Analytic plan.

Results were analyzed using the Statistical Package for Social Science (SPSS, Version 21). Due to the type of variables, we used non-parametric tests which are appropriate for statistically testing small samples, as in this study.

First, we presented descriptive data of all the study variables. Given the small sample size, we categorized the attachment classifications of late-adopted children (SRP-T1, MCAST-T2, FFI-T3) and mothers (AAI-T3) both into secure vs. insecure (and organized vs. disorganized) groups in order to have more statistical power. To control for possible bias occurring given that data were dependent for families having adopted siblings, 15 mothers and their 15 adopted children, randomly chosen from the sibling group, were preliminary tested against the 15 mothers and their 22 children from the overall sample, using the Chi-Square Test. The comparison between the sub-sample of 15 mother-child dyads and the overall sample of 22 dyads did not show statistically significant differences with respect of the concordance/discordance of the dyads in T1 ($\chi^2 = 0.11$, $p = 0.73$) and T3 ($\chi^2 = 0.04$, $p = 0.84$) and neither in the percentage of increase of concordance from T1 to T3 ($\chi^2 = 0.002$, $p = 0.96$). With respect only of the mothers, we did not find a significant concordance between secure/insecure classifications of the AAI at T1 and AAI at T3 ($\chi^2 = 0.15$, $p = 0.70$). Thus, further analyses were conducted on the overall sample consisting of 15 mothers and 22 children.

We used the McNemar's test for dichotomous variables measured in dependent samples and the r_{phi} correlation coefficient to test the association for dichotomous variables. We standardized values to compare measures with different scales (*e.g.* SRP on a 7-point scale with FFI on a 4-point scale), and for the quantitative variables on ordinal scales, the Wilcoxon test for dependent samples, the Mann-Whitney U test for independent samples, and the Spearman *rho* as correlation coefficient (r_s) were used.

Results

Preliminary analyses: attachment classifications and control variables

Table 2 shows the distribution of the children's classifications in the SRP-T1, SRP-T2, MCAST and FFI, and the adoptive mothers' AAI categories at T1 and T3.

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As in the previous phases, the FFI secure/insecure classifications did not show any significant correlations with the following controls variables: gender, age at placement, presence of siblings, and years of school (p between .10 and .96). Unlike in previous phases, now attachment security correlated with verbal skills: secure adolescents in the FFI scored significantly higher on verbal IQ (M = 100.85, SD = 19.97) than insecure ones (M = 74.11, SD = 22.07), U = 20, p = .009.

From childhood to adolescence

Children's attachment shift from the beginning of adoption (SRP-T1) to adolescence (FFI-T3). A majority of adolescents (55%; n = 12), who were classified as insecure in attachment behaviors at the beginning of adoption, were then classified as secure in attachment representations in adolescence, showing a statistically significant change of 50% (McNemar, p = .001; r = .49, 95% CI range = .172 - .174). Specifically, only 14% of children (n = 4) were categorized as securely attached at T1, but 59% of adolescents (n = 13) were securely attached at T3. Moreover, at T1 52% of participants were categorized as insecure-dismissing (n = 15) and 34% as insecure-preoccupied (n = 10), whereas both these sub-classifications of insecurity decreased at T3 to 32% (n = 7) and 9 % (n = 2), respectively.

The Wilcoxon's test also showed significant changes: the security scores increased between SRP/Security (Mdn = -0.11) and FFI/Secure (Mdn = 0.51), p =.000; whereas the insecurity scores decreased from SRP/Avoidance (Mdn = 0.12) to FFI/Insecure-Dismissing (Mdn = -0.29), p =.001.

Children's attachment shift from childhood (MCAST-T2) to adolescence (FFI-T3). The shift from insecure to secure attachment representations from T2 (MCAST) to T3 (FFI) was not significant (McNemar test, p =.75), thus the hypothesis of a change was not supported.

However, a significant decrease in the disorganization of attachment was found (36%, McNemar test, p =.008, r =.48). Specifically, all adoptees classified as disorganized with the MCAST (n = 8) became secure (37%, n = 3) or at least were found rated in the organized-insecure classifications with the FFI (63%: 4 Dismissing and 1 Preoccupied).

The Wilcoxon's test also showed a significant decrease in disorganization scores between MCAST/Disorganization (*Mdn* = -0.15) and FFI/Disorganized pattern (*Mdn* = -0.56), p = .000, as well as an increase in narrative coherence scores among MCAST/Coherence of narrative (*Mdn* = -0.26) and FFI/Overall Coherence (*Mdn* = 0.10), p = .000.

Association of secure-insecure attachments between late-adopted adolescents and their adoptive mothers.

Unlike in previous phases, in the current study, a significant concordance of 77% (r_{phi} = .52, p = .014) with a large effect size[3], among secure-insecure attachment classifications of 22 mother-adolescent dyads was found. Specifically, 80% of adoptive dyads found discordant in T1 became concordant in T3 (n = 12), and the McNemar test revealed a 54% increase of concordance (p = .013; r = .45, 95% CI range = .158-.16) between attachment classifications of children and their adoptive mothers from the beginning of adoption to adolescence.

Discussion

In the current study, the first objective was the long-term follow-up of the attachment patterns of late-adopted children through adolescence. We hypothesized a shift from insecurity towards security and this was confirmed, showing *discontinuity in attachment* classifications across each phase, with an increase to the more optimal secure classification, thus showing catch-up from previous negative experiences.

More than half of late-adoptees significantly changed their insecure attachment

[3] The effect sizes values are interpreted in line with what is indicated by Cohen (1988): small effect ≥.10, medium ≥.30, large ≥.50.

behaviors displayed in childhood towards secure attachment representations in adolescence. The change in attachment patterns was also supported by the changes along the dimensional scales, as we observed an increase of security and a decrease of avoidant/dismissing strategies from attachment behaviors in T1 to representations in T3. Therefore, if our previous studies detected a short-term significant and positive change in the attachment behaviors eight months after the adoption, these findings support the hypothesis that late-adopted children continue the positive revision in their insecure attachment patterns over a long period after placement, as revealed in other longitudinal studies (Rutter et al., 2007; Vorria et al., 2006). These results are also in line with those on early-adopted children, showing discontinuity in attachment from infancy to adolescence (Beijersbergen et al., 2012) and young adulthood (Schoenmaker et al., 2015), although participants of this study did not have the opportunity to benefit from the protective role of maternal sensitivity during their infancy as early adopted children did.

Moreover, our previous results highlighted a high percentage of disorganized attachment representations in children, assessed through an attachment story completion task at eight months after placement. In adolescence, we observed a significant decrease of attachment disorganization and an improvement in narrative coherence, in line with the adoption literature (Beijersbergen et al., 2012; Hodges et al., 2005; Pace, Di Folco & Guerriero, 2018).

We suggested that late-adoptees, placed in a new stable, nurturing, and caring environment, gradually replaced the adaptive attachment strategies necessary to survive in an adverse pre-adoptive context. Such attachment strategies (avoidant or disorganized) were based on the deactivation and minimization of attachment needs and/or dominated by chaos and bizarre content. Having established a long-lasting and trustful relationship with their adoptive mothers, those attachment strategies were no longer needed and they were changed into more positive and coherent representations, where children could express their needs with

confidence that they will receive care and attention from responsive parents. We suggested that experiencing the continuity of a secure family-context for a long time, such as 5 to 8 years, late-adopted adolescents had the time to improve their attachment patterns not only in terms of behaviors, but also of representations. Given their "earned" security to explore different parts of the environment and their relationships, they could create more integrated IWMs, benefiting from the growth of representational skills that occurs in adolescence (Jacobsen, Edelstein, & Hofmann, 1994).

Surprisingly, no disorganized classifications in T1 and T3 were found, although they would be expected among late-adopted participants, due to neglect or abuse these children may have suffered (Van den Dries et al., 2009). The lack of disorganized classifications at T1 may be explained by the fact that late adoptees had lived with adoptive parents for so too short time (around 40 days) to display punitive or caregiving behaviors towards them, which are typical of disorganized children. The lack of disorganization at T3 may be the positive consequence of being cared and loved by sensitive and available caregivers, as above-mentioned. Otherwise, the absence of disorganized classifications may be explained as a potential weakness in the FFI's coding system when relying only on the verbal scales, as Pace (2014) suggested.

In this study, secure adolescents showed higher verbal IQ than insecure ones, unlikely from previous phases. These findings are in line with a study examining infant attachment and developmental functioning shortly after international adoption (van Londen, Juffer, & van IJzendoorn, 2007). On one hand, we may suggest that "earned secure" participants develop more self-confidence than insecure ones, and thus perform better in cognitive tasks during adolescence. Alternatively, we may suppose that adoptees with higher verbal IQ showed better verbal skills so to be classified as secure in the FFI, highlighting a potential weakness in the discriminant validity of this interview. There are no conclusive findings in this regard and the nature of the relation would deserve to be deepened in further studies on samples of adoptees.

However, confirming our first hypothesis, the changes in the attachment classifications found in this study remained significant over the time when controlling for the participants' verbal abilities and this was true for any phase.

Given the importance of parental secure state of mind with respect to attachment as a precursor of adolescents' security (Allen & Tan, 2016), our second aim was to evaluate the IWMs of adoptive mothers and investigate the association of attachment patterns with their late-adopted adolescents. Confirming our hypothesis, in this long-term follow-up we found a significant association between attachment classifications of adoptive mother – adolescent dyads, which was not revealed during childhood in the briefer longitudinal study (Pace et al., 2012). The lack of any significant concordance between the maternal classifications (AAI T1-T3) over the time is consistent with a 2013 meta-analysis (Pinquart et al., 2013), showing that the stability in the attachment classifications, as assessed by the AAI, drops after 5-15 years from the first assessment. However, we observed in our adoptive sample that children with secure attachments have mothers with secure states of mind with respect to attachment, whereas the mothers of insecure children were more likely to be classified as insecure or unresolved at the AAI, both at the baseline and in T3. Several studies highlighted that both biological and adoptive mothers classified secure in the AAI are able to promote confidence and exploration of the environment in their children, leading to more attachment security. It is reported that in the adoption context secure adoptive mothers who are able to coherently integrate their own biographical memories, can help their children to elaborate and organize their previous negative experiences in a coherent manner, fostering security of their attachment representations (Pace et al., 2016). This could be particularly helpful for adolescents, as they are involved in a reorganization of attachment behavior and in their identity definition, which is especially challenging for the adoptees, as they must cope with painful biographical memories (Grotevant, Lo, Fiorenzo, & Dunbar, 2017). Additionally, adoptive parents with

secure states of mind were found to better tolerate and support their children's separation and exploration needs, which are developmental milestones in normative adolescence (Barone et al., 2017; Pace et al., 2015a; Steele et al., 2008; Verhage et al., 2016). On the contrary, adoptive mothers having insecure or unresolved attachment states of mind are characterized by difficulties in reconsidering their past emotional experiences with their parents, including themes of separation, loss, and fear, and in processing them in a balanced and coherent representation (Steele et al., 2003). This difficulty may be reflected in their inability to help their children to organize their autobiographical memories into integrated narratives, as they cannot represent a reliable source of emotional and material support in their children's upbringing (Pace et al., 2016).

Considering that adolescence is a well-known critical and stressful period in adoptive families, both for adolescents and their parents (Sanchèz-Sandoval & Palacios, 2012), we would suggest that the security in maternal IWMs may have a relevant protective role in the adjustment of the adoptees in this developmental stage, especially concerning attachment security (Groza & Muntean, 2016). Parental security (especially maternal) could also help adoptees in maintaining their "earned security" over the time, supporting the literature on the stability of secure attachment despite the discontinuity of insecure one (Vorria et al., 2015). Therefore, it could be clinically important to promote the construction of secure attachment since the beginning of the adoption. As in childhood, attachment security during adolescence is related to sensitive parenting (Beijersbergen et al., 2012) and with parental secure states of mind (Pace, Santona, Zavattini & Di Folco, 2015).

From a clinical perspective, our findings would suggest that, although the AAI is not suitable as diagnostic measure aimed at selecting "good" parents, using this interview in the pre- and post-adoption phases could be useful for identifying and monitoring risk factors associated with parental insecure or disorganized attachment state of mind –such as

unelaborated maternal feelings about losses, traumas, separations and rejections- which could affect the attachment relationship with the adopted child (Steele & Steele, 2008). We agree with Groza and Muntean (2016) that adoption is a life-long process and the support needed by adoptive families does not terminate with the placement. Thus, we would suggest that the use of the AAI to explore parental attachment states of mind during the adoption process as this could equip professionals with useful information for a targeted intervention aimed at supporting adoptive parenting according to specific needs and time periods of the family, including adolescence.

Strengths and limitations

This study presented main strengths, as the inclusion of a specific sample of late-adopted children not easily reachable, the longitudinal and intergenerational transmission perspective, and the use of observational and narrative attachment measures for children and mothers at three phases of assessments.

However, this longitudinal study showed several limitations reducing the generalizability of the results: a modest number of adoptive families were involved; the high mortality of the original sample (24%); the heterogeneity of the adoptees regarding age at adoption, type of adoptions (both international and domestic), and different countries of origin; the lack of a unique non-adopted control group from T1 to T3 for monitoring control age differences and the influences derived from the use of various instruments; the lack of assessment of adoptive fathers' attachment representations; the lack of measurement of other factors which could have been related to attachment representations, e.g. parental/children psychopathological symptoms, parental stress, dyadic adjustment, parenting, etc (De Pasquale, Raby, Hoye, Dozier, 2018; Pace & Muzi, 2017; Pace et al., 2015b; Salcuni, Miconi, Altoè, & Moscardino, 2015; Sánchez-Sandoval & Palacios, 2012; Santona et al., 2015). To overcome these limitations, future longitudinal studies should involve a bigger and less heterogeneous

sample of adoptees, and include a control non-adopted group, paternal attachment assessments as well as measurements of other attachment-affecting variables.

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