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ARTICLE



Multiple facets of attachment in residential-care, late adopted, and community adolescents: an interview-based comparative study

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ABSTRACT

In this study, 117 adolescents (12–19 years) from three groups (39 each), two groups from adverse caregiving environments as placed in residential-care (RC; i.e. institutions) or late-adopted (LA; i.e. adopted after 12 months), and one of low-risk community adolescents (COM), were compared for the attachment distribution of categories in the Friends and Family Interview (FFI), and in several attachment-related domains where RC and LA showed difficulties during childhood. Only institutionalized adolescents showed more insecure and disorganized categories than both late-adopted and community peers, who did not differ. In the attachment-related domains, only RCs showed lower coherence, reflective functioning, secure-base/safe-haven parents, social and school competence, adaptive response, and more parental anger and derogation than the other two groups. Late-adoptees only showed higher hostility towards sibling(s) than COM. Therefore, only residential-care adolescents were at “high-risk” in attachment, but the analysis of attachment-related domains helped to detect vulnerabilities in both groups.

KEYWORDS


Adolescence; attachment; adoption; institutionalized children; attachment interview

Introduction

Placement in residential care (i.e. institutionalization, RC) and the adoption after 12–24 months of age of the child (i.e. late-adoption, LA) are measures of child-care designed to safeguard the well-being of children who experienced early parental loss or abandonment, or removal from the family of origin due to adverse experiences such as neglect, abuse or declared parental inability (due to psychiatric illness, substance abuse, or incarceration). From an attachment perspective (Bowlby, 1944, 1958; Dozier & Rutter, 2008), these experiences qualify the care environments as “adverse” because they can hinder a child in developing secure Internal Working Models (IWMs; Bowlby, 1980) of attachment.

Specifically, placement in *residential care* is usually a temporary measure to safeguard the child’s well-being from a family environment deemed unable to ensure his/her healthy growth. The child is reintegrated into the family of origin as soon as it is

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demonstrated that the conditions leading to institutionalization no longer exist (e. g. parental economic or alcoholic problems prompting child's abuse and neglect). If these conditions are not resolved, or if the child is orphaned or abandoned, (s)he lives in an institution waiting to be adopted. If the institutionalization occurs during the first two years of life, which is considered the critical period for building attachment bonds (Bowlby, 1958), the turn-over of professional caregivers may hinder children in identifying preferred caregiver(s) to establish exclusive attachment relationship(s) underpinning their primary IWMs (Van IJzendoorn et al., 2011). Even when placement occurs later in life, institutionalized children are more exposed to attachment disruptions due to multiple placements in different institutions, foster families, or adoptive failures, leading to the rupture of bonds with non-biological caregivers and friends (Van IJzendoorn et al., 2011).

Moreover, while the family of origin attempts to solve the problems leading to institutionalization, the child may be exposed to continuous movements from the family to the institution and the reverse. This instability of caregiving environments and figures, through multiple placements and/or prolonged contacts with abusive parents, predisposes to more disorganization in the IWMs (Van IJzendoorn et al., 2011). Indeed, two meta-analyses (Lionetti et al., 2015; Van Den Dries et al., 2009) reported institutionalized children aged 1–8 years as more likely to show insecurity and disorganization of attachment than both community and adopted peers.

Differently, *adoption* is a permanent child-care measure where the adoptive parents assume a fully and legally recognized parental role on the child. Despite greater stability of the caregiving environment than in institutions, late-adopted children can be at risk to develop attachment insecurity because they experienced the absence of a stable attachment figure, or the disruption of the primary attachment bond with the biological parent(s), during the critical 0–24 months period of development of the IWMs (Pace et al., 2012). Moreover, if removed from an abusive or neglecting family of origin, late-adopted children were presumably longer exposed to pre-adoptive adversities and their related negative consequences on attachment (Dozier & Rutter, 2008). Indeed, the meta-analysis of Van Den Dries et al. (2009) revealed late-adopted children aged 0–12 years were more at risk for displaying insecure and disorganized attachments than both early-adopted (i.e. before 12 months) and community peers.

Attachment in institutionalized and adopted teenagers: is it different?

The greater insecurity of attachment shown by residential-care and late-adopted children seems to set them back from forming new positive and potentially “restorative” attachment relationships with further caregivers (Dozier & Rutter, 2008).

According to attachment scholars, this difficulty stems from negative representations of adults as unavailable to be attachment figures, capable at providing comfort in case of distress and encouraging the exploration, i.e. safe-haven and secure-base functions (Dozier & Rutter, 2008; Hillman et al., 2020; Vorria et al., 2006).

Since the IWMs tend to stability (Bowlby, 1973), even at later ages, one can expect these groups display more attachment difficulties than peers raised by low-risk biological families. However, it can also be reasonable to expect a different pattern of differences between these groups and low-risk community peers in adolescence, if compared to childhood, because IWMs may show discontinuity between these developmental stages

(Groh et al., 2014a). Indeed, the literature reported an increase of dismissing strategies toward parents in community teenagers, who seek distance from parents, turning to peers when the attachment system gets activated (Allen & Tan, 2016; Bakermans-Kranenburg & Van IJzendoorn, 2009). Moreover, growing meta-cognitive skills enable teenagers to integrate specific IWMs (with parents, friend(s), siblings) into a general meta-representation of attachment, which, being a synthesis, may not even overlap the IWMs detected in childhood (Steele & Steele, 2005).

Moreover, longitudinal studies reported an increase of security in the IWMs of late-adoptees aged 3–8 years, from six months after adoption up to eight years later – during their adolescence – especially when placed in adoptive families that guarantee a stable and sensitive caregiving environment (Barone & Lionetti, 2012; Pace et al., 2012, 2019; Steele et al., 2008; Vorria et al., 2006, 2015).

Furthermore, unlike childhood findings, several studies found no significant attachment differences between *late-adopted* and community pre-teens and teenagers.

Indeed, seven interview-based studies (detailed in Table 1) assessing IWMs of late-adoptees aged 10–24 years reported predominantly secure attachment classifications and slightly higher rates of insecure or disorganized classifications than those in community studies.

Four of these studies also performed comparisons with community groups (Escobar & Santelices, 2013; Pace et al., 2018; Riva Crugnola et al., 2009; Vorria et al., 2015), and only Escobar and Santelices (2013) found late-adoptees as more insecure.

Except for Vantieghem et al. (2017), even most questionnaire-based comparative studies reported no significant differences with respect to the security of attachment as referred by late-adopted and community teenagers (Altinoglu-dikmeer et al., 2014; Barroso et al., 2018; McSherry et al., 2016; Paull, 2013; Torres-Gomez et al., 2020).

Table 1. Distribution of attachment categories of residential-care, late-adopted, and community adolescents across studies with different attachment interviews^a.

% range			
Categories	Residential-care ^b	Late-adopted ^c	Community ^d
Secure-autonomous	4–15%	32–65%	44–67%
Insecure-dismissing	20–76%	28–52%	22–36%
Insecure-preoccupied	0–19%	3–16%	7–12%
Disorganized	12–46%	0–22%	3–12%
<i>N (pooled)</i>	293	313	1169

^aAAI = Adult Attachment Interview; ASI = Attachment Style Interview; CAI = Child Attachment Interview; FFI = Friends and Family Interview; AICA = Attachment Interview for Children and Adolescents.

^bSchleiffer and Muller (2003) (AAI, N = 72, 12–16 years); Zegers et al. (2006, 2008) (AAI, N = 81, 13–20 years); Bifulco et al. (2016) (ASI, N = 118, 10–18 years); Zaccagnino et al. (2015) (CAI, N = 22, 10–13 years); Muzi and Pace (2020) (FFI, N = 20, 13–18 years);

^cVorria et al. (2015) (CAI, N = 52, 12–14 years); Groza and Muntean (2015) (FFI, N = 63, 11–16 years); Escobar and Santelices (2013) (FFI, N = 50, 11–18 years); Pace et al. (2018) (FFI, N = 46, 11–16 years); Molina et al. (2015) (FFI, N = 27, 10–16 years); Riva Crugnola et al. (2009) (AICA, N = 35, 10–15 years); Simonelli and Vizziello (2009) (AAI, N = 40, 13–24 years).

^dBakermans-Kranenburg and Van IJzendoorn (2009) (international meta-analysis AAI, N = 503, 13–19 years), Cassibba et al. (2013) (national meta-analysis AAI, N = 336, 13–19 years); Cavanna et al. (2018) (CAI; N = 189, 9–13 years); Ammaniti et al. (2000) (AICA, N = 31, 14 years); Pace et al. (2020b) (FFI, N = 110, 11–17 years).

Contrarily, like childhood findings, for *institutionalized* teenagers (who did not experience a marked change of environment if compared to late-adopted ones), studies mainly reported unfavourable attachment outcomes.

Indeed, all interview-based studies involving (non-psychiatric¹) *residential care* participants aged 10–20 years (five studies, N = 293) reported high rates of attachment disorganization, predominantly insecure-dismissing categories, and only 4–15% of interviews were classified as secure (see Table 1). Among them, the only comparative study from Zaccagnino et al. (2015) found residential-care pre-teens as more disorganized and less secure than the community group. RC participants also showed lower attachment security than community peers in two questionnaire-based studies (Barroso et al., 2018; Shechory & Sommerfeld, 2007).

Attachment-related domains in institutionalized and late-adopted children

Attachment insecurity and/or early adversities can also affect several developmental domains, where both institutionalized and late-adopted children showed difficulties (Bowlby, 1980; Juffer et al., 2011). Specifically, both institutionalized and late-adopted children showed lower narrative coherence and reflective functioning² (Pace et al., 2020a; Vorria et al., 2006; Zaccagnino et al., 2015) and lower social competence and school achievement (Juffer et al., 2011; Palacios et al., 2013; Vorria et al., 2006) than community peers. Both groups also showed difficulties in affect regulation regarding low adaptive stance, excessive role reversal, and anger toward parents (Batki, 2018; Hillman et al., 2020; Pace et al., 2020a; Vorria et al., 2006).

Beyond the exclusive attention to attachment macro-categories (Salcuni et al., 2017), a micro-analysis of attachment narratives would allow an investigation also of attachment-related domains, which are related to adolescent's well-being (Borelli et al., 2019; Groh et al., 2014b; Pace et al., 2018; Torres-Gomez et al., 2020). The investigation of these attachment-related domains is almost absent in institutionalized and late-adopted teenagers, where the combination of categorical and continuous scale approaches could add value by providing unknown information (Hillman et al., 2020; Lubiewska & Van De Vijver, 2020). Further, attachment research in these groups seems to have relatively neglected the exploration of attachment relationships with siblings, which would be useful to explore further. As Linares (2006) suggested, adoptees may show difficulties in this area, and other studies showed that positive relationships with siblings have a protective role for both adopted and institutionalized children (Cavalcante et al., 2012; Meakings et al., 2017; Román et al., 2012).

The current study: rationale and aims

Given the above, of the two groups (LA and RC) with attachment difficulties in childhood, it can be assumed that only the institutionalized group could be more insecure and disorganized in adolescence. However, researchers cannot fully validate this assumption because only two questionnaire-based attachment studies compared institutionalized, late-adopted and community adolescents, with Barroso et al. (2018) confirming only greater vulnerability in the RC group, while McSherry et al. (2016) did not find any significant group differences.

According to Lionetti et al. (2015), narrative interviews can be more sensitive in capturing insecurity in groups with adverse backgrounds. Thus, this study would be novel in extending prior work by employing an interview to compare the IWMs of attachment of these three groups. Since late-adopted teenagers showed a positive catch-up in attachment, they could be considered a medium-risk group placed between institutionalized and community peers. Their comparison with the (supposed) “high-risk” institutionalized group may extend prior knowledge about the magnitude of differences in a temporary or stable form of child-care and possibly provide ideas for identifying the elements promoting attachment security in both groups.

Furthermore, no studies compared these three groups in the aforementioned attachment-related domains. Also, findings on late-adopted and institutionalized groups are generally scarce and fragmented. This study would add a modest contribution to understanding group differences in attachment-related domains during adolescence, potentially helping to design interventions. To better contextualize the results of the comparison, correlations between participants’ attachment and several variables related to attachment security were preliminarily checked, such as gender, age, and age at placement in adoption/institution or its length, number of placements out-of-family and the incidence of abuse (Pace et al., 2020b; Raby et al., 2017; Schleiffer & Muller, 2003; Van Den Dries et al., 2009; Van IJzendoorn et al., 2011).

Given the above, the *aims* of the current study were:

- (a) To compare residential-care [RC], late-adopted [LA], and community [COM] teenagers in the IWMs of attachment, assessed through an age-adapted semi-structured interview, the Friends and Family Interview (FFI, Steele & Steele, 2005). (a) RC participants were hypothesized to show more insecure and disorganized classifications than both LA and COM groups, which were supposed to show no significant differences.
- (b) To compare the three groups in the FFI scales of attachment-related domains, expecting lower scores of narrative coherence, reflective functioning, adaptive response, social and school competence, and higher scores of role reversal and anger toward parents for both LA and RC groups compared to COM. RC participants were also expected to show lower scores of secure-base/safe-haven parents than both the other two groups, while LA participants were expected to show worst sibling relationships than COM, in terms of lower scores of warmth and higher scores in hostility and rivalry.

Method

Participants

A sample of 117 adolescents, aged 12–19 years old ($M = 15.5$, $SD = 1.9$, 56% boys), took part in this study. The sample was composed of three equal groups of RC, LA, and COM adolescents (39 each), whose age ($p = .524$) and gender distribution ($p = .966$) were not significantly different, as detailed in the complete demographics provided in Table 2.

As shown in Table 2, RC and LA participants were all placed due to adverse experiences.

RC participants were placed between 9–16 years old ($M = 13$, $SD = 3.3$), for 1 to 9 years ($M = 2.7$, $SD = 2.5$),³ and they were mostly Italians, with a third from foreign Countries

Table 2. Demographics and background characteristics of three groups of residential-care, late-adopted, and community adolescents.

Source	Residential-care		Late-adopted		Community		χ^2 (2)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
Gender								
Female	18	46	17	42	17	43		.07
Male	21	54	22	56	22	56		
Place of birth								59.2**
Italy	26	64	5	13	39	100		
Foreign countries	13	36	34	87	0	0		
Parental couple								29.4**
Together	19	49	38	97.5	28	72		
Not together ^a	20	51	1	2.5	11	28		
Siblings								14.9**
No	5	12	16	41	8	21		
Yes	34	88	23	59	31	79		
Adverse experiences ^b								
None	0	0	0	0	39	100		
Abuse and/or neglect	30	77	27	69	0	0		
Declared parental inability	6	15.5	1	2.5	0	0		
Abandonment	2	5	10	26	0	0		
Death of parents	1	2.5	1	2.5	0	0		
Placement(s) out-of-family ^{b,d}								
Never	0	0	0	0	39	100		
Single	20	51	26	67	0	0		
Multiple	19	49	13	33	0	0		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	F (2,114)	η^2
Age (years)	15.7	1.9	15.2	1–9	15.6	1–9	.65	.01
Verbal skills	89.5	16.5	101.7	18	103.8	18.4	3.3*	.09
Education (years)	9	1.9	9.1	2.3	10.6	2	6.9**	.11

N = 117 (n = 39 each condition).

^adivorced, separated or widowed.

^bNo comparison due to cell values < 5.

^cCorrespond to the reason of placement out-of-family.

* $p < .05$. ** $p < .01$.

(16% South America; 13% East-Europe; 3% Asia; 1% Africa), in line with national statistics (Autorità Garante dell'Infanzia e l'Adolescenza, 2015). However, all foreigners received education in Italy since primary school, and RC teenagers of different nationalities showed no differences in age, verbal skills, distribution of attachment classifications, or scores in attachment measures (all $p > .05$); thus, they were considered a unique group. All RC participants had a primary professional caregiver, who usually took care of two other RC children. Almost all RC participants had personal contacts with their families of origin, every weekend (43%), every two weeks (18%), monthly (7.6%) or 2–3 times per year (20.4%), and only in three cases, the Court prohibited visits of the parents to safeguard adolescents. However, all adolescents could call their families of origin by phone every day without asking for permission or contact frequency or duration restrictions.

LA participants were all placed between 2–8 years old ($M = 5.5$, $SD = 3.2$), and the adoption lasted 3–17 years ($M = 9.6$, $SD = 3.8$).³ As shown in Table 2, most of them came from International Adoptions (41% East-Europe, 21% South America; 20% Asia; 5% Africa), but they did not differ from domestically adopted participants in age, verbal skills, distribution of attachment classifications, or scores in attachment measures (all $p > .05$), thus all late-adoptees were considered a unique group. Most of them lived in intact

adoptive families, and, according to the nature of the adoption measure, none of the teenagers had contact with their family of origin. Lastly, [Table 2](#) shows that the COM group included all Italian adolescents, mostly grown up in intact birth-families, with no adverse experiences leading to the removal from the family of origin (only one adolescent declared parental disability).

Measures

- The Friends and Family Interview (FFI; Steele & Steele, 2005; Steele et al., 2009) is a 27-question semi-structured interview to assess attachment representations during middle childhood and adolescence. The Italian version, authorized by the author H. Steele (Pace et al., 2020b), was used in this study. The 45-minute interview is (video)-taped and transcribed verbatim, then coded with a double-coding AAI-informed (Main et al., 2008) yet different system, because the FFI rates each attachment pattern in scales (Steele et al., 2009), and the higher score on them corresponds to the best-fit category of attachment of the interviewee, allowing a categorical but also a dimensional evaluation of attachment. Attachment patterns are: 1. Secure-autonomous (S), when the narrative reflects openness, flexibility, and the young person's ability to turn to others to search for support when upset or distressed and give help to others in time of need; 2. Insecure-dismissing (Ds), when the person's narrative reflects a restriction in the acknowledgement or the expression of distressing feelings and the tendency to use idealization or derogation; 3. Insecure-preoccupied (P) identifies narratives where passivity or anger predominates, along with unbalanced and indecisive oscillations in the attachment figures' descriptions; 4. Disoriented-disorganized (D), as an expression of insecurity, when the person's narrative reflects the presence of contradictory or incompatible attachment strategies and the young person's difficulty monitoring or reasoning the discourse with references to frightening or traumatic experiences that seem unresolved.

The FFI is also coded in the other eight domains,⁴ each one comprehensive of several scales: 1) Coherence, which includes four sub-scales according on Grice's conversational maxims (1975): truth, economy, relation, manner, summarized in an overall coherence score; 2) Reflective functioning, including the scales of developmental perspective, theory of mind, and diversity of feelings toward mother/father/friend/sibling; 3) Secure base/safe haven (mother/father/other), namely the representation of parental availability to provide comfort when the child is distressed or frightened, i.e. safe-haven, and to give encouragement to exploration, i.e. secure-base; 4) Self-esteem, inclusive of social and school competence and self-regard; 5) Friend relationships, in terms of frequency and quality of contact with the best friend 6) Sibling relationships, in terms of warmth, hostility and rivalry; 7) Use of affective regulation strategies of idealization (self/mother/father), anger (mother/father), derogation (self/mother/father), role-reversal (mother/father), and adaptive response; 8) Differentiation of parental representations. Each scale is scored on a 7-point Likert scale with scores from 1 (no evidence) to 4 (marked evidence), including mid-points.

The FFI showed good psychometric properties, including the version used in this study (Pace et al., 2018, 2015, 2020b; Psouni & Apetroaia, 2014; Psouni et al., 2020; Steele & Steele, 2005; Stievenart et al., 2012).

- The Verbal Comprehension Index of the Weschler Intelligence Scale Fourth Edition (VCI-WISC-IV; Orsini et al., 2012; Wechsler, 2003) to assess verbal IQ as given by the sum of three sub-tests: similarities, vocabulary, and comprehension, with excellent reliability in the currently used version ($\alpha = .96$). In this study, the VCI-WISC-IV was used to check the potential effect of participant's verbal skills in his/her ability to respond to the attachment measures, given that past adverse backgrounds could have been negatively affected the verbal IQ of LA and RC groups (Van IJzendoorn et al., 2011).

- A demographic data form (Pace et al., 2015) to collect participants' demographics (e.g. family) and placement information in LA and RC groups.

Procedure

This study is part of larger mixed-method research (Muzi & Pace, 2020) that received approval from the University of Genoa Research Ethics Committee (CER), protocol n. 021, and from local Social Services through formal agreements.

Social Services collaborated in the recruitment of RC and LA participants, whereas high schools in recruiting community ones. All the participants and their legal guardians were verbally informed about research goals and procedures, then they signed an informant consent for voluntary participation before data collection, according to the Declaration of Helsinki requirements.

Overall, 187 teenagers were contacted from 2017 to 2019 and were deemed eligible for this study if they: 1) had between 12–19 years; 2) not fulfilled criteria for severe physical and/or intellectual disabilities, and/or they showed severe psychiatric symptoms that could compromise research participation (e.g. psychotic symptoms, disabling depressive symptoms and/or substance abuse), according to the clinical judgment of professionals of the adoption and residential care services, or declaration of community parents in the demographic data form; 3) had responded to the FFI. Among them, 20 opted out of the entire research (11% attrition. Among the remained 167, six participants younger than 12 years old were excluded (one RC, two LA, and three COM), and ten participants from the RC group were removed because educators declared that they exhibited disabling psychiatric symptoms at the time of data collection. The remaining 151 were eligible for this study and they were placed in RC and LA groups of equal sample size ($n = 39$). Therefore, an equal number of COM participants were selected to reach equal sample sizes and comply with the criteria for carrying out statistical comparisons through ANOVA. Participants in COM ($n = 39$) were matched for age and gender with LA and RC participants, while 34 nineteen-year-old COM girls were excluded because inclusion would have caused a statistically significant difference between the groups in terms of gender and age (more girls and older participants in COM). The final sample included 117 participants, 77% of those deemed eligible.

Data collection took place in home-visiting, in one individual session for each teenager, conducted by the first author for both the RC and LA groups and by seven trained MSc students in Psychology in the COM group, under the continuous supervision of authors. In all three groups, teenagers were asked about their parents, identified by the RC and COM participants as their biological parents, while adoptees identified their adoptive parents. If a participant wanted to talk about another significant attachment figure, ratings were given in the SB/SH Other scale, not considered in this study. All the FFI were audio-taped

and transcribed verbatim, removing all contextual and personal information, and all data were saved named with an alphanumeric identification code assigned to the participant to protect the participant's privacy. Two independent coders rated 36 of 117 interviews (31%), achieving 100% agreement on either secure-insecure, 4-way, and organized-disorganized classifications, all $k = 1$ with $p < .001$. FFI scores assigned by coders showed significant inter-rater agreement (all $p < .01$), and their averages were used as scores for this study. One coder coded the remaining 81 interviews (69%).

Analytic plan

All results were considered statistically significant with $p < .05$. [Table 4](#) reports percentage distributions of the FFI categories, mean scores and standard deviations in FFI scales for all groups.

As shown in [Table 1](#) (supplementary materials), there were domains where sub-scales showed significant intercorrelations. For these domains, a synthetic score was created, corresponding to the average score of sub-scales scores, e.g. RF score is the average of the scores for all sub-scales of developmental perspective, theory of mind, and diversity of feelings. With these new scales, the FFI had Cronbach's $\alpha = .93$.

Logistic regression was performed to ascertain the effects of group (COM = 0, LA = 1, RC = 2), gender (0 = male), age, verbal skills (due to lower scores in RCs, see [Table 2](#)), age at placement and its length, and never/single/multiple occurrences of placement(s) out-of-family or abuse/neglect on the likelihood that participants receive secure classifications in the FFI (2-way system, dummy variable with secure = 0 and insecure = 1). COM group was settled as 0 (control), with age at placement 0 and its length corresponding to the participant's age, and never placed out-of-family or abused/neglected.

Multiple chi-square test on the percentage rates of FFI classifications was used to compare the three groups in the 2-way, 4-way and organized-disorganized distributions in the FFI, reporting Cramer's $V (\phi_c)$ as a measure of the effect size.⁵

A One-Way Analysis of Variance (ANOVA) with Bonferroni's post-hoc correction was used to investigate group differences in FFI scores on attachment-related domains.

Results

Group differences in distributions of FFI classifications

FFI categories were distributed as follows: Secure (21% RC, 72% both LA and COM), Insecure-dismissing (33% RC, 18% both LA and RC), Insecure-Preoccupied (28% RC, 5% LA, 10% COM) and Disorganized-disoriented (18% RC, 5% LA, none in COM).

As shown in [Table 3](#), the logistic regression model on the 2-way distribution of classification was statistically significant, $\chi^2 (9) = 19.32$, $p = .023$, and the model explained 32.3% (Nagelkerke R^2) of the variance in secure classifications of the FFI, with 74.6% of the cases correctly classified. The group was the only significant predictor, as adolescents in the residential-care group were .09 times less likely to receive a secure classification than the other two groups. Instead, participant's gender, age, verbal skills, age at placement in adoption/institution or its length, and the occurrence of

Table 3. Binary logistic regression predicting classification as secure in the Friends and Family Interview (FFI) 2-way distribution in 117 adolescents grouped as community ^a, late-adopted, and residential-care.

Variable	B (SE)	p	OR	95% CI (OR)	
				LL	UL
Group (1) Late-adopted	- 2.38 (1.78)	.180	.09	.01	3.01
(2) Residential-care	- 2.44 (1.21)	.043	.09*	.01	.93
Gender (female)	.87 (.62)	.156	1.45	.61	3.46
Age	.45 (.41)	.273	1.57	.70	3.52
Verbal skills	-.02 (.02)	.196	.98	.94	1.01
Age at placement	-.54 (.38)	.161	.58	.27	1.24
Length of placement	-.57 (.38)	.137	.57	.27	1.20
Occurrence of placement(s) out-of-family ^b	.32 (.15)	.699	1.38	.27	7.02
Incidence of abuse/neglect ^b	-.02 (.01)	.925	.98	.61	1.56

n = 39 each group.

Model Wald's χ^2 (9) = 19.32, p = .023, Nagelkerke R^2 = .32. OR = Odd Ratio. LL = lower limit, UL = upper limit.

^aSettled as group 0 (control), with age at placement = 0, length of placement corresponding to the age and occurrence of placement(s) or abuse/neglect settled on "never".

^bordinal variable, never = 0, single = 1, multiple = 2.

* p < .05. ** p < .01. *** p < .001.

Table 4. Means, standard deviations, and one-way analyses of variance with bonferroni post-hoc correction for the effect of the group on multiple attachment domains assessed with the Friends and Family Interview (FFI) in 117 adolescents.

FFI scales	Residential-care		Late-adopted		Community		F(2, 114)	η^2
	M	SD	M	SD	M	SD		
Patterns								
Secure-autonomous	1.72 _b	.74	2.80 _a	.73	2.94 _a	.91	27.35***	.32
Insecure-dismissing	2.21 _a	.89	1.82	.77	1.54 _b	.76	6.66**	.10
Insecure-preoccupied	1.90	.87	1.53	.63	1.53	.68	3.25*	.05
Insecure-disorganized	1.78 _a	.81	1.26 _b	.53	1.19 _b	.37	11.36***	.17
Overall coherence	2.38 _b	.44	2.97 _a	.52	3.05 _a	.62	18.42***	.24
Reflective functioning ^a	1.97 _b	.55	2.59 _a	.46	2.77 _a	.49	26.72***	.32
SB/SH parents ^b	1.58 _b	.54	2.63 _a	.63	2.40 _a	.80	26.97***	.32
Affect regulation								
Idealization self	2.32	3.83	1.50	.65	1.35	.77	2.03	.03
Mother	1.68	.94	1.82	.85	1.59	.85	.68	.01
Father	1.75	1	1.81	.84	1.76	.88	.04	.00
Role reversal parents ^b	1.59	.64	1.28	.37	1.47	.70	2.79	.05
Anger parents ^b	1.96 _a	.86	1.33 _b	.56	1.26 _b	.53	12.87***	.18
Derogation self	1.65	.87	1.28	.56	1.36	.70	2.89	.05
Derogation parents	1.85 _a	.94	1.26 _b	.53	1.38 _b	.60	7.26**	.11
Adaptive Response	2.17 _b	.86	2.71 _a	.79	3.00 _a	1.04	8.97***	.14
Social competence	2.56 _b	.85	3.13 _a	.61	3.18 _a	.74	8.43***	.13
School competence	2.61 _b	1	3.25 _a	.58	3.01	.85	5.69**	.09
Sibling relationships								
Warmth	2.33	.86	2.62	1.23	2.44	.99	2.08	.04
Hostility	1.43	.77	1.86 _a	1.13	1.34 _b	.54	3.45*	.07
Rivalry	1.47	.89	1.32	.82	1.13	.32	1.85	.04

n = 39 each group. Means with subscripts differ at the p = .05 level by Bonferroni post-hoc test, with mean_a as the highest.

Mean score for the sub-scales: ^a Developmental perspective, Theory of Mind, Diversity of Feelings. ^bseparated for mother and father.

* p < .05. ** p < .01. *** p < .001.

placement(s) and abuse were not significant predictors of the likelihood to be classified as secure in the FFI.

The chi-square test on the 2-way distribution confirmed that RC received more insecure classifications, $\chi^2(2) = 27.60, p < .001, \phi_c = .49$, than the other two groups (79% vs. 28% both), who did not show any differences. In detail, in the 4-way distribution, the RC group were classified as more insecure-dismissing than both LA and COM, $\chi^2(1) = 23.17, p < .001, \phi_c = .42$, which showed the same rate.

RC also were classified more insecure-preoccupied than both LA, $\chi^2(1) = 37.16, p < .001, \phi_c = .42$, and COM groups, $\chi^2(1) = 27.95, p < .001, \phi_c = .48$, showing no differences between them $\chi^2(1) = .92, p = .330, \phi_c = .48$.

Lastly, RC adolescents were more likely to receive disorganized classifications than LA ones, $\chi^2(1) = 7.07, p = .008, \phi_c = .20$. Given the COM group did not receive D classifications, it was not compared with the other two groups on organized-disorganized distribution.

Comparison of attachment-related domains

As shown in Table 4, ANOVA with Bonferroni's post-hoc correction on FFI scores only partially confirmed the attachment-related domains' hypotheses.

As expected, RC showed lower scores of narrative coherence, reflective functioning, secure base/safe haven parents, social and school competence, and affect regulation abilities (i.e. more anger and derogation toward parents, and lower adaptive response) than both LA and COM groups. Contrary to the expectations, the LA group showed only higher hostility toward sibling(s) than COM, showing no difference in other attachment-related domains.

Discussion

This study provided a comparison of attachment of adolescents placed in residential-care or late-adoption because of previous adverse experiences with community peers raised by their low-risk birth families. So far, studies including all these three groups used only self-report questionnaires (Barroso et al., 2018; McSherry et al., 2016), whereas this was the first study employing a narrative interview. Moreover, this was the first study that compared institutionalized and late-adopted adolescents with a community group simultaneously and between each other. Further, beyond the comparison only on attachment categories, this study compared the groups in different attachment-related domains where insecurely-attached institutionalized and late-adopted children showed difficulties that are scarcely studied in adolescents belonging to these groups.

Differences in the distribution of attachment categories: only institutionalized adolescents were "at-risk"

The first aim was the group comparison of the attachment distribution of categories provided by the FFI, which fully confirmed the hypotheses, supporting and joining fragmented results from interview-based studies on pairs of groups, i.e. institutionalized or late-adopted vs. communities (Pace et al., 2018; Riva Crugnola et al., 2009; Vorría et al., 2015; Zaccagnino et al., 2015). Regardless of participants' gender, age, verbal skills, occurrences of multiple placement(s) or abuse/neglect, and age at placement or its

length, only the *institutionalized teenagers* were more likely to receive an insecure classification in the FFI (Pace et al., 2020b; Raby et al., 2017; Schleiffer & Muller, 2003; Van Den Dries et al., 2009; Van IJzendoorn et al., 2011).

The RC group showed higher rates of insecure-dismissing and insecure-preoccupied classifications than both community and late-adopted peers, suggesting the prevalence of insecure strategies in teenagers in RC, as they did not turn to significant others to seek comfort when distressed, or help in challenging situations (Wallis & Steele, 2001; Zegers et al., 2006). However, while insecure-dismissing categories markedly prevailed in previous studies in residential-care settings (e.g. Bifulco et al., 2016), in this study insecure-dismissing categories slightly prevailed only for the insecure-preoccupied ones (33% vs. 28%). Therefore, avoidant and anxious-ambivalent attachment strategies were almost equally distributed in insecurely attached RC participants, whose response to attachment-related stimuli could have been the hypoactivation if dismissing or the hyper-activation if preoccupied.

Moreover, institutionalized participants obtained more disorganized categories than late-adopted ones. This result is the first obtained with a narrative method supporting findings from comparisons of institutionalized and late-adopted children and extending prior knowledge to participants up to nineteen years old (Van Den Dries et al., 2009). Given the absence of disorganized classifications in the community group and the significant difference in the disorganization score (Table 4), one can suppose that institutionalized teenagers were even more disorganized than community peers, aligning with the results by Zaccagnino et al. (2015).

On one side, it could further confirm the greater vulnerability to attachment insecurity of the RC group, given that a fifth of participants still lacked an organized strategy guiding the relational behaviour. One can assume these were disoriented by the presence of contradictory attachment strategies or by the influence of bizarre and frightening contents in their IWMs, which could inhibit the teenagers' adaptive functioning (Madigan et al., 2016; Wallis & Steele, 2001). On the other side, it is noteworthy that Italian RC participants of both the current study and the one by Zaccagnino et al. (2015) showed lower percentages of disorganized classifications than international RC peers, respectively 18% and 12% versus 30–46% in international studies (Bifulco et al., 2016). This result could suggest that Italian adolescents placed in RC could be more able to organize an attachment strategy, even if insecure. Given that the two national studies used different interviews, such lower rates could not be attributed to the assessment method. Moreover, it was not related to other variables mentioned above such as age, gender, or multiple placements (Van IJzendoorn et al., 2011). Therefore, it may suggest that some dimensions of Italian residential-care environments could be protective against attachment disorganization, encouraging to test this cultural-oriented hypothesis through future inter-country investigation in RC settings (Muzi & Pace, 2020; Zegers, 2006).

Contrarily, encouraging results of this study confirmed the absence of differences in attachment between late-adopted participants and community peers raised by biological parents, in line with the majority of cited studies (Pace et al., 2018; Riva Crugnola et al., 2009; Vorria et al., 2015). Given that late-adopted participants showed the same rates of secure classifications as community peers and no statistically significant difference in rates of preoccupied and disorganized categories, they could not be considered "medium-risk" for attachment insecurity. Moreover, their "normative" security was not related to their

age, gender, age at adoption or its length, or to previous multiple placements or abuse/neglect (Pace et al., 2020b; Van Den Dries et al., 2009). Therefore, attachment security of late-adoptees can be a consequence of “qualitative” aspects of caregiving highlighted in different adoption studies, such as the attachment states of mind, sensitivity, and reflective functioning of the adoptive parents (Groza & Muntean, 2015; Molina et al., 2015; Pace et al., 2019). A possible implication for the attachment theory would be to focus the attention on these caregiver’s features in further research in residential settings. Future studies could compare parents of LA, RC, and COM teenagers in these caregivers’ features, and eventually, professionals could design future interventions to support their improvement in biological parents and professional caregivers of institutionalized adolescents (León et al., 2018).

Group differences in vulnerabilities in attachment-related domains

The second aim of this study was to compare groups in those attachment-related domains, assessable through FFI dimensional scales, where RC and LA groups showed difficulties as children.

This study’s results did not fully confirm the hypotheses based on the literature on childhood, extending prior knowledge on targeted domains in institutionalized and late-adopted adolescents. Again, the institutionalized group showed the poorest expected outcomes than the other two groups, similar to studies with children, while late-adopted adolescents did not show the same difficulties as late-adopted children (Hillman et al., 2020; Juffer et al., 2011).

Specifically, in line with Zaccagnino et al. (2015), institutionalized adolescents showed lower narrative coherence and reflective functioning than the other two groups, perhaps due to a cumulative effect of previous and current adverse relational experiences (Fonagy & Bateman, 2016; Pace et al., 2014). Indeed, RC teenagers maintain contact with abusive parents while placed, and they could also have been victims of peer violence, experiences which could maintain disorganization (thus low coherence) in their IWMs (Muzi & Pace, 2020; Zegers et al., 2006). Such experiences could also affect the teenager’s reflecting functioning, as understand the other and personal’s feelings and intentions can be too painful or dangerous (Fonagy & Bateman, 2016). Given that higher reflecting functioning is related to adolescents’ well-being, the future investigation in residential-care settings could focus on this variable and consider this domain a possible target for preventive intervention with institutionalized adolescents (Borelli et al., 2019; Zaccagnino et al., 2015).

Further, as hypothesized, the RC group also showed the poorest representation of parental availability as secure-base or safe-haven, which could be a consequence of past or recent memories of troubled parents, who may have responded with rejection or frightened-frightening reactions to the child’s request of comfort and help. This representation of the significant adult as unavailable could have long-lasting worrisome implications, for instance, limiting the teenager’s desire to relatedness with parents and peers and other attachment relationships with professional caregivers (Dozier & Rutter, 2008; Pallini et al., 2014). Moreover, these negative representations were also reflected in affect regulation strategies employed by institutionalized participants, who showed a low adaptive stance to self-regulate negative emotions related

to significant relationships. Specifically, RC participants tended to manifest involving anger or derogation of the parents typical of insecurely attached individuals (Steele & Steele, 2005). Given Konishi and Hymel (2014) suggested that adolescents' anger can lead to dysregulated responses within relationships, this result would be helpful for professional caregivers to support institutionalized teenagers in developing more adaptive affective regulation strategies, especially considering this group as an at-risk group for behavioural problems (Zegers et al., 2008). From a research perspective, it would suggest the utility to improve the limited research on the effects of these attachment defensive strategies on adolescents' well-being and relationships.

Lastly, RCs showed low social and school competence, extending to adolescents the vulnerability of institutionalized children in these domains (Juffer et al., 2011). However, more than the indiscriminate friendliness observed in children, adolescents' lower social competence developed the form of social inhibition, which could be a remnant of adverse environments if the child's desire for social connection provoked parental rejection (Dozier & Rutter, 2008). The poor school achievement could be due to their higher insecurity or unstable living conditions after the placement, especially if multiple placements resulted in multiple school changes and academic interruptions (Carrera et al., 2019; Jacobsen & Hofmann, 1997; Van IJzendoorn et al., 2011). These findings suggested the need for further investigating the role of multiple placements in social and school difficulties in this group, particularly relevant given school engagement is highlighted as a possible factor of resilience for residential-care teenagers (Lou et al., 2018).

Regarding the group of late-adoptees, the only difficulty they manifested was the higher hostility toward siblings compared to community peers. According to the literature (Linares, 2006; Meakings et al., 2017), if such hostility occurs between biological siblings adopted together, it may reflect a model based on previous adverse environments, while it may be indicative of a sense of inferiority of the adopted child when directed towards the natural child of adoptive parents. More research is needed to test such hypothesis, but this result calls for greater attention to siblings' attachment from adoption professionals and attachment scholars, given the paucity of studies on siblings' attachment in groups of adolescents with early adverse histories.

Overall, these results seem to confirm more favourable outcomes for late-adopted than for institutionalized adolescents, both in attachment IWMs and in attachment-related domains. Extending to adolescence the suggestions by Juffer et al. (2011), the characteristics of stability of the adoption can foster security, especially if caregivers are responsive and sensitive to the child's needs, while the instability and multiple placements typical of residential care may be detrimental.

Therefore, residential services are encouraged to consider the attachment and attachment-related difficulties showed by RC adolescents, attempting to ensure a stable environment and/or designing interventions to support continuous and more positive attachment relationships between adolescents and their parents. Particularly in these times, where the Covid-19 pandemic poses challenges and additional contact restrictions, the professionals working in residential-care services may attempt to ensure greater stability in the environment and their adolescents' family contacts (Goldman et al., 2020).

Strengths, limitations, and future directions

This study's strengths were to be the first interview-based comparison, including simultaneously residential-care and late-adopted teenagers with a control group, targeting dimensional attachment-related domains and not only the attachment categories. However, several limitations prevent generalizing its conclusions: first, as pilot investigation, participants were few, limiting the statistical power of analyses. Moreover, in line with national statistics about institutionalized adolescents (Autorità Garante dell'Infanzia e dell'Adolescenza, 2015), many RC participants entered in institutions at older ages than late-adoptees, which makes these two groups highly heterogeneous in the comparison, with possible distortions on results that are difficult to control and comment. Secondly, the scarcity of interview-based comparative studies in these groups limited the contextualization of the results within the literature's findings. Furthermore, a lack of information due to privacy protection limited the investigation of other aspects linked to attachment insecurity, such as the number of attachment disruptions or potential adverse experiences before RC and LA participants' placement. Besides, new attachment-like relationships established by institutionalized participants with professional caregivers were not explored, as out of focus for this investigation despite recognized as a relevant factor of resilience (Lou et al., 2018; Zegers et al., 2006, 2008).

Further, other aspects related to the insecurity of attachment were neglected to maintain the focus, such as the relationships between IWMs and psychopathology (Allen & Tan, 2016; Muzi & Pace, 2020). In this regard, the interest of the international audience for the current results may have limited by the decision to exclude participants with severe psychiatric symptoms. Indeed, this study involved only non-psychiatric RC teenagers, as in Italy teenagers with or without psychiatric diagnoses are mostly placed in different residential homes, while many international Countries have mixed RC facilities (Van IJzendoorn et al., 2011). Moreover, late-adoptees have also shown a long-life risk for psychiatric diagnoses (Behle & Piquart, 2016); thus, there is a need for future studies inclusive of psychiatric LA and RC groups to fully interpret the current results within the existing literature (Muzi & Pace, 2020; Wallis & Steele, 2001). Lastly, the correlational nature of this study prevented testing causal connections between the type of child-care, residential-care or adoption, and attachment outcomes.

In conclusion, future studies may increase the investigation of attachment-related domains and their relationships with the functioning of residential-care and late-adopted adolescents, involving larger groups, and preferably relying on longitudinal research design and mixed-methods.

Notes

1. Wallis and Steele (2001) were the first to use an attachment interview in a residential setting with adolescent psychiatric patients and they found that these were mostly classified as disorganized.
2. The individual's ability to understand the self and others in terms of intentional mental states, like desires, feelings, attitudes and goals (Fonagy & Bateman, 2016).
3. Inclusive of current and previous placements.
4. See Pace et al. (2020b) for a more detailed description of each domain.
5. Small = .01 (1df) or .07(2df), medium = .30 (1df) or .21(2df), large = .50 (1df) or .35 (2df).

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article [and/or] its supplementary materials.

Disclosure statement

The authors report no potential conflict of interest.

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