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Changes in Attachment Disorder symptoms in children internationally adopted and in residential care

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ABSTRACT

Background: A high incidence of Reactive Attachment Disorder (RAD) and Disinhibited Social Engagement Disorder (DSED) has been reported for children with experiences of trauma and other forms of adversity.
Objective: The present study aims to explore symptoms of RAD and DSED in children in two protection alternatives (international adoption and residential care) after experiences of early adversity.
Participants and setting: The participants were 146 children: 40 children adopted into Spanish families from Russia, 49 children in residential care in Spanish institutions (40.8% in long-term foster centers) and 57 community comparison children.
Methods: The Relationship Problems Questionnaire was used to explore both RAD and DSED. All adoptive parents and institutional caregivers retrospectively reported the problems at time of placement (Wave 0), as well as the symptoms observed at the time of the study, with children aged 4–8 years old (Wave 1). At this stage, the assessment of the community comparison group was added.
Results: Adopted and children in residential care presented high levels of RAD and DSED symptoms at placement. For adoptees, previous experiences of abuse and neglect were marginally associated with the initial presence of RAD symptoms and a significant recovery was observed after an average of three years in their families, with a certain level of longitudinal continuity between initial and later assessments. In children currently placed in long-term residential centers in Spain, DSED symptoms worsened from W0 to W1.
Conclusions: Adoption appears to be an effective intervention that promotes recovery of RAD and DSED symptomatology after early adversity, whereas institutionalization causes negative effects.

1. Introduction

Disorders of attachment and sociability in childhood have been the subject of intense debate in recent years, particularly in relation to inhibited and disinhibited symptomatology. Initially, emotionally withdrawn and indiscriminately disinhibited behaviors were grouped together in DSM-III as the two forms of the Reactive Attachment Disorder (American Psychiatric Association, 1980). Later, attachment disorders have been subject to an intensive conceptual revision (Minnis, 2018; Rutter, Kreppner, & Sonuga-Barke, 2009;

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Zeanah & Gleason, 2015). Whilst it has been suggested that these complex patterns of socio-emotional relationships are best understood in the frame of the new concept of Developmental Trauma Disorder (Van der Kolk & D'Andrea, 2010), DSM-V (American Psychiatric Association, 2013) included both Reactive Attachment Disorder (RAD) and Disinhibited Social Engagement Disorder (DSED) in the category of Trauma and Stressor-Related Disorders. Common experiences for children in need of out-of-home placement (abuse and neglect, domestic violence, living far away from parents or family, repeated changes of caregivers, grief and loss) can be conceptualized as emotional traumas (Toof et al., 2020) compatible with the concept of trauma as defined by Substance Abuse and Mental Health Services Administration (2014). Previous research has shown a high incidence of the symptomatology of RAD and/or DSED among children in care (Bruce et al., 2019; Gleason et al., 2011; Jonkman et al., 2014; Kay & Green, 2013; Minnis et al., 2006; Rutter et al., 2007).

Despite sharing a similar etiology, the diagnostic features and developmental course of these two disorders seem to be different. The DSM-V (APA, 2013) diagnostic criteria for RAD include a consistent pattern of inhibited, emotionally withdrawn behavior toward adult caregivers and a persistent social and emotional disturbance characterized by minimal social and emotional responsiveness to others, limited positive affect and episodes of unexplained irritability, sadness, or fearfulness that are evident even during non-threatening interactions with adult caregivers. Diagnostic criteria for DSED include a pattern of behavior in which a child actively approaches and interacts with unfamiliar adults and exhibits reduced or absent reticence in approaching and interacting with unfamiliar adults, overly familiar verbal or physical behavior, diminished or absent checking back with an adult caregiver after venturing away or willingness to go off with an unfamiliar adult with little or no hesitation. Therefore, inhibited behaviors are predominant in RAD whereas disinhibited behaviors are characteristic of DSED. According to the DSM-V (APA, 2013), the prevalence of these disorders is still unclear, but it is estimated that in severely neglected high-risk populations the prevalence of RAD may be less than 10% and less than 20% for DSED.

Since first reported by Tizard and her colleagues (Hodges & Tizard, 1989; Tizard & Hodges, 1978), the pattern of behavior characterized by a tendency to develop non-selective relationships, with indiscriminate friendliness and superficial behaviors with strangers (DSED) has attracted considerable attention in the study of children who have experienced early institutionalization. The frequent turnover of caregivers and the high ratio of children per caregiver in many institutions hinder the opportunity for individualized care, so the display of particularly friendly behavior toward new caregivers may have an adaptive function in this context (Chisholm, 1998; Minnis, 2018; Rutter et al., 2007). The adaptive function of indiscriminate friendliness would cease to be effective once a change of context has taken place and institutionalized children have moved to a family offering individualized care, so that the expected evolution of this pattern of behavior might be that should disappear after placement.

In more recent research, the English and Romanian Adoptees study has confirmed the higher incidence of attachment disturbances in children with longer exposure to depriving institutionalization in Romania (O'Connor et al., 1999; Rutter et al., 2007), as well as the persistence of some of the symptoms (disinhibited behaviors) in early adulthood (Kennedy et al., 2017; Sonuga-Barke et al., 2017). Similar results were found in children adopted in Canada from Romanian institutions (Chisholm, 1998; Chisholm et al., 1995). In the Bucharest Early Intervention Project, compared to those who had never been institutionalized, children with a history of institutional care showed a greater presence of disinhibited and inhibited attachment disorder behaviors, with signs of DSED persisting in some children over time and RAD symptomatology decreasing significantly in those moved into foster care (Guyon-Harris et al., 2018). Since all these studies have involved infants and young children experiencing the severe deprivation of Romanian institutions, more research is needed with samples experiencing other institutional circumstances.

The present study aims to explore the symptomatology of RAD and DSED in children in two protection measures in Spain: international adoption from Russia and residential care. Information about the presence of symptomatology when initially placed in their adoptive families or in the protection centers, and at a later point, will permit the study of patterns of change in each group. In addition, the exploration of this symptomatology in children who were in residential care in Spain at the end of the pre-school stage will allow us to assess the effect of institutionalization beyond early childhood.

The specific aims of this study are: (1) To analyze the symptoms of RAD and DSED in children with experiences of early adversity at the time of their placement in residential care (RC) or in intercountry adoptive families (IA); (2) To examine those symptoms after a period of time in each protection alternative (IA or RC) and to compare the results with those obtained in a community group; (3) To analyze the course of the symptoms over time; (4) To examine the association between institutionalization and symptoms of RAD and DSED; and (5) To explore the relationship between RAD and DSED symptoms and background variables. This study contributes to our knowledge about the nature of RAD and DSED, the influence of early adversity and their changes under different rearing circumstances.

2. Methods

2.1. Participants

The participants in this study were 146 children: 40 children who were internationally adopted from Russia in Spain (IA), 49 children in residential care in Spanish institutions (RC) and a comparison group of 57 children from the community (CG) without family adversity. The parents/caregivers provided information about the children and the study was carried out when children were between 4 and 8 years of age.

The international adopted group was composed by children who were born in Russia and adopted by Spanish families (for many years, Russia was one of the main countries of origin for international adoption into Spain). These children were adopted at a mean age of 36 months (SD = 15.97) and, at the time of the study, had been with their families for an average of 40 months (SD = 14.25). The

gender distribution in this group (72.5% boys and 27.5% girls) reflects the typical tendency in adoptions from Eastern European countries (Selman, 2012). Almost all of these children (95%) had been institutionalized before their adoption, with the average age at the start of institutionalization being 9 months (SD = 15.34) and with an average of 26 months of institutional experience (SD = 13.78). Of those for whom information was available ($n = 31$; 77.5%), 29% were known to have experienced abuse or neglect before adoption.

The group of children in residential care in Spanish institutions had been separated from their families after experiencing abuse or neglect, and mostly after family preservation attempts. Approximately half (53.1%) the residential care group were girls and 46.9% boys. The average age at the time of institutionalization was 64 months (SD = 20.78) and duration of institutionalization was 13 months (SD = 16.18). They lived in relatively small protection centers usually with fewer than 20 children each (49% of the children living in centers with less than 10 children). The institutions were well-staffed, with qualified caregivers (from professional training to college degrees) who worked in shifts, making it more difficult for the children to form stable emotional relationships with the changing adults. Children in residential care attended the schools in the community and participated in extra-curricular activities outside the centers. 59.2% of the children of this group were in emergency child centers (EC), where they remained for a few months before a more permanent decision was made. The average duration of institutionalization in this group was 6 months (SD = 5.39). The remaining residential care group, 40.8%, lived in long-term foster centers (LT), with turnover of caregivers and other structural arrangements similar to the other group. The average duration of institutionalization in this group was 23 months (SD = 21.15).

The community comparison group was composed of Spanish children (49.1% boys and 50.9% girls) from different neighborhoods and socio-economic levels (including children from disadvantaged neighborhoods) in the same city where most of the adopted children and children in residential care lived. The community children were living with their birth families with no contact whatsoever with child protection.

At the time of the study, the average age was 76 months (SD = 14.22) for the adopted children, 77 months (SD = 17.88) for children in residential care and 75 months (SD = 14.14) for the community group.

2.2. Measures

Relationship Problems Questionnaire (RPQ; Minnis et al., 2002; Minnis et al., 2007) consists of a validated questionnaire of 10 items that describe both inhibited (for example, *sometimes looks frozen with fear*, *without an obvious reason*) and disinhibited (for example, *gets too physically close to strangers*) symptoms of RAD and DSED respectively. For each one, there are four graded possible responses from *exactly like my child* to *not at all like my child*. The questionnaire allows separate scores for inhibited and disinhibited behaviors. All parents and caregivers in institutions responded to the questionnaire referring to the child's behaviors at the time of the study, when the children were between 4 and 8 years old (W1). Adoptive parents and caregivers also answered retrospectively referring to the time at placement (W0). The W0 questionnaire for one child of the residential care group was not available. Cronbach's alpha in W0 was $\alpha = 0.643$ for inhibited scale and $\alpha = 0.858$ for disinhibited scales and in W1 was $\alpha = 0.692$ for inhibited scale and $\alpha = 0.811$ for disinhibited scale.

An interview with the parents and the caregivers was performed to obtain information about the children's history: experiences before placement, age at entrance and duration of institutionalization, age at adoption, and time with adoptive family.

2.3. Procedure

This work is part of the Longitudinal Adoption and Institutionalization Study from the University of Seville (LAIS.US), a broader research on child welfare alternatives in Spain. From the total sample of the LAIS.US study, it was not possible to obtain information about RAD and DSED symptoms for one child from the residential care group and one child from the community group. For Wave 1, adoptive families were contacted through two agencies specialized in international adoptions from Russia in Spain. 80% of the families contacted by the researchers agreed to participate (10 refused, due mainly to some incumbent problems). In the residential care group, the contact and assessment took place under the authorization and mediation of the regional child protection agency (98% participated). Families from the community were contacted through schools. The schools were selected randomly and represented different socio-economic levels. Letters were sent to invite families to participate in the study (10% refused).

Each child's main caregiver was interviewed: the mother in most cases (four fathers in the adopted group). In the residential centers, the caregiver identified by the staff as having most familiarity with each child was interviewed. International adopted and community groups were visited in their homes. The University Ethics Committee approved the research project as conforming to the regulations in force in Spain and the European Union.

2.4. Data analysis

Descriptive analyses were carried out: ANCOVA, Student's *t*-test for independent samples, t-test for related samples, and Pearson *r* correlation. Effect sizes were reported for the means comparisons: Cohen's d (0.20 small, 0.50 medium and 0.80 large) and *partial eta-squared* (0.01 small, 0.06 medium and 0.14 large). When necessary, alternative non-parametric tests were used, such as the Mann-Whitney *U* test. Contrasts with a probability value of less than the level of significance, which was fixed at 0.05, were considered significant (significances between 0.05 and 0.06 were specified). Data analyses were carried out using the statistical package SPSS26.

3. Results

3.1. RAD and DSED symptoms at Wave 0

A two-way (Group × Gender) ANCOVA was performed controlling for age at placement to compare RAD and DSED symptoms in international adopted and residential care groups at W0. Table 1 shows comparative analyses between groups. The ANCOVA results showed that the main effects of group (IA and RC) on disinhibited behaviors were not significant ($F_{(1, 87)} = 1.07$, $p > .05$, $\eta^2 = 0.01$). Differences between IA and RC in inhibited behaviors failed to reach significant levels ($F_{(1, 87)} = 2.95$, $p > .05$, $\eta^2 = 0.03$), but the effect size of the means comparison was medium.

3.2. RAD and DSED symptoms at Wave 1

A two-way (Group × Gender) ANCOVA was performed on inhibited and disinhibited behaviors controlling for age at the moment of the study to compare the symptoms of RAD and DSED at W1. The ANCOVA results showed that the main effects of group on inhibited behaviors ($F_{(2, 145)} = 17.19$, $p < .001$, $\eta^2 = 0.20$) and disinhibited behaviors ($F_{(2, 145)} = 3.29$, $p < .05$, $\eta^2 = 0.05$) were significant. Post-hoc group comparisons were performed with the adjusted means obtained in the ANCOVA. Results indicated that children in residential care displayed more inhibited behaviors than adopted and community children, with large effect size (Table 1). Differences between residential care and community groups in disinhibited behaviors were statistically significant, which was not in the case of the comparison with adopted group. The effect sizes of the differences in both comparisons (IA-RC and CG-RC) were marginally medium. There were no statistically significant differences between adopted and community children.

To deepen the comparison between children adopted and in residential care, a two-way (Group × Gender) ANCOVA to compare children internationally adopted, children in Spanish short-stay emergency centers, and children in long-term centers was performed controlling for age at the moment of the study and also for the time since entry into the protection measure. The ANCOVA results showed that the main effects of group on inhibited behaviors ($F_{(2, 88)} = 8.33$, $p < .01$, $\eta^2 = 0.17$) was significant, but not for disinhibited behaviors ($F_{(2, 88)} = 2.69$, $p > .05$, $\eta^2 = 0.06$). The scores in both residential care groups at W1 tended to be higher than those in the adopted group in all cases. Post-hoc group comparisons showed that differences between adopted children and the two residential groups were significant for inhibited behaviors. The comparison for disinhibited behaviors was only significant when comparing adoptees with children in long-term centers. The differences between children in emergency centers and children in long-term centers did not reach significant levels in any of the variables (Table 2).

3.3. RAD and DSED symptoms from W0 to W1

Carers reported a significant decrease in RAD and DSED symptoms from W0 to W1 ($t_{(39)} = 4.55$, $p < .001$; $d = 0.84$; and $t_{(39)} = 3,80$, $p < .001$; $d = 0.70$) in the international adopted group. In the residential care group, differences between W0 and W1 did not reach statistical significance for the disinhibited score ($t_{(47)} = -0.17$, $p > .05$; $d = 0.01$). However, there was a significant decrease in the mean of inhibited behaviors from W0 to W1 ($t_{(47)} = 3.08$, $p < .01$), although the effect size was small ($d = 0.32$). When differentiating by type of institution, the group of emergency centers showed a significant decrease in scores from W0 to W1 in the inhibited behaviors ($t_{(27)} = 3.80$, $p < .01$; $d = 0.53$), but the disinhibited score did not change significantly ($t_{(27)} = 1.70$, $p > .05$; $d = 0.24$). In children in long-term centers no significant differences W0-W1 were found in inhibited behaviors ($t_{(19)} = 0.86$, $p > .05$; $d = 0.12$). However, this group showed a significant increase in the score for disinhibited behaviors from W0 to W1 ($t_{(19)} = -2.80$, $p < .05$), with small effect size ($d = 0.39$). Figs. 1 and 2 show symptoms over time in these three groups.

Symptoms in W0 and W1 were positively and significantly correlated both in inhibited and disinhibited behaviors in international adopted group ($r = 0.36$, $p < .05$; and $r = 0.33$, $p < .05$), residential care group ($r = 0.77$, $p < .001$; and $r = 0.76$, $p < .001$), children in

Table 1
Post-hoc comparisons for adjusted means in ANCOVA and effect sizes in observed means by groups (international adoption, residential care and community group).

	International Adoption (IA)	Residential care (RC)	Community group (CG)	Effect sizes (Cohen's *d*)		
				IA-RC	IA-CG	RC-CG
Wave 0						
Inhibited	3.44	5.00	–	0.62**	–	–
Disinhibited	5.48	4.38	–	0.27*	–	–
Wave 1						
Inhibited	1.23[a]	3.83[a,b]	1.36[b]	1.00***	0.13	0.94***
Disinhibited	3.21	4.37[a]	2.77[a]	0.40*	0.07	0.48*

Note: Groups with the same superscript ([a, b]) show means comparison significantly different to 0.05 level.
Cohen's *d* values:
* 0.20, small.
** 0.50, medium.
*** 0.80, large.

Table 2
Post-hoc comparisons for adjusted means in ANCOVA and effect sizes in observed means by groups (emergency center, long-term center and adoptive group) at Wave 1.

	Emergency centers (EC)	Long-term centers (LT)	Effect sizes (Cohen's *d*)		
			IA – EC	IA – LT	EC – LT
Inhibited	4.27	4.32	1.05[c]	0.97[c]	0.19
Disinhibited	4.01	5.56	0.25[a]	0.64[b]	0.34[a]

Note: IA = International adopted group.
Cohen's *d* values:
[a] 0.20, small.
[b] 0.50, medium.
[c] 0.80, large.

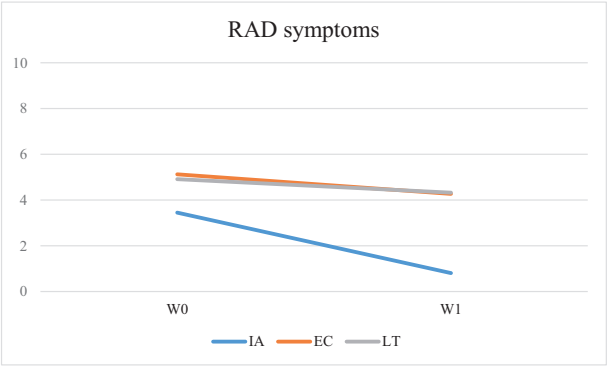

Fig. 1. Changes in RAD symptoms in the international adopted (IA), emergency short-term center (EC) and long-term center (LT) groups from Wave 0 (W0) to Wave 1 (W1).

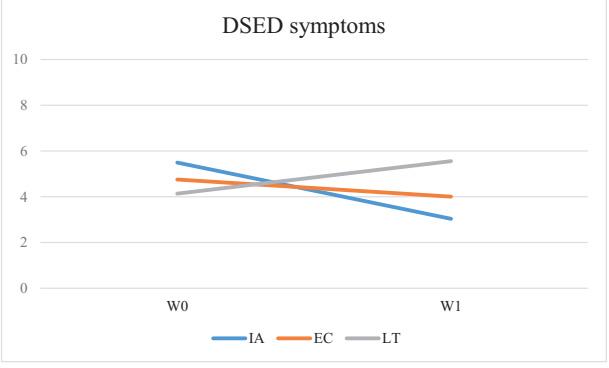

Fig. 2. Changes in DSED symptoms in the international adopted (IA), emergency short-term center (EC) and long-term center (LT) groups from Wave 0 (W0) to Wave 1 (W1).

emergency centers ($r = 0.75$, $p < .001$; and $r = 0.79$, $p < .001$) and children in long-term centers ($r = 0.79$, $p < .001$; and $r = 0.80$, $p < .001$).

3.4. RAD and DSED symptoms and children's characteristics and background

In the international adopted group, no differences appeared according to the child's gender. Age at placement in the adoptive family was not significantly related to W0 scores (but it was negatively related with inhibited behaviors at W1), nor was current age or time in the family related to scores at the time of the study. Children who had been abused or neglected before adoption had higher scores on inhibited behaviors at W0 arrival in the adoptive family than those who had not (M = 4.89 and M = 2.64), with marginally significant differences (U = 55.00, $p = .052$). Regarding pre-adoption history, age at the start of institutionalization correlated with disinhibited behavior at W0 ($p = .054$), with marginal significance. In the residential care group, neither differences related to gender nor

significant relationships were found between age at entrance, age at study or time of institutionalization and symptoms (Table 3).

4. Discussion

At the time of placement, internationally adopted and residential care children presented high levels of RAD and DSED symptoms (DSM-V Trauma and Stressor-Related Disorders) associated with their early adverse experiences. At the time of placement, carers reported no differences between the symptoms presented by adopted children and those in residential care. However, in the case of inhibited behaviors, the effect size of the differences was medium, children in centers showing more symptoms. These group differences might reflect two adversity paths (Jiménez et al., 2015), one more characterized by social and family adversity, where there is a lesser presence of abuse (international adopted group) and the other more characterized by a long exposure to abuse within the family before institutionalization (children in residential care in Spain).

In internationally adopted children, the analysis of the course of symptoms from placement into the adoptive family up to the time of the study, on average three years later, indicated a substantial catch-up, such that the symptoms were reduced to the level of the community group, indicating the positive effect of adoption on RAD and DSED symptomatology.

Previous studies have indicated that although the change from an institutional to a family environment seems to drastically reduce the presence of RAD symptomatology (Chisholm et al., 1995; O'Connor et al., 1999; Smyke et al., 2012; Tizard & Hodges, 1978), the effect of context change on DSED symptomatology seems to be more limited, with a greater persistence (Chisholm, 1998; Guyon-Harris et al., 2018; Sonuga-Barke et al., 2017; Zeanah et al., 2017). The results reported here show a significant improvement in adopted children for both inhibited and disinhibited behaviors. Most previous studies evaluated children raised in institutions in Romania, an extremely depriving institutional context, so it may be that less severe previous adversity in Russian institutions allows a better recovery. However, the relationship found in this study between the initial and current scores reflect a certain degree of continuity of the negative effects of early adversity. Research is needed to analyze these children's individual trajectories over time to better assess patterns of change or stabilization.

In the case of children in residential care, the course of symptoms has followed a different trajectory to that in the adoptive group. Results indicate that when children are moved from a situation of neglect to one of protection, such as institutionalization, there seems to be an initial improvement, as the children in emergency child centers have shown a significant decrease in inhibited behaviors during the six months, on average, in which they had been in the centers. However, that improvement seems not to be consolidated or generalized, as the inhibited behaviors remained relatively stable in the case of the long-term foster center group. At the same time, the disinhibited behaviors worsened significantly (although with small effect size) from the time when the children in long-term foster centers entered the institution until the moment of the study (23 months, on average, later), making the negative repercussion of residential care on this symptomatology evident. At the time of the study, inhibited behaviors were more frequent in the residential care group than among the adoptive and community groups. Regarding disinhibited behaviors, we have reported a lack of significant differences between children who were adopted and children from emergency child centers, whilst the differences between adoptees and children from long-term foster centers do reach significant levels, with more disinhibited behaviors among the second group. In general, results show that institutionalization involves a risk for aggravation of emotional disturbances, especially for disinhibited behaviors (Minnis, 2018; Rutter et al., 2007; Rutter, Kreppner, & Sonuga-Barke, 2009; Tizard & Hodges, 1978).

Especially striking is the course of disinhibited behaviors among the group of adopted children after their placement and those continuing in long-term institutional care. Upon arrival in the adoptive family or at the center, the children from both groups had an elevated manifestation of these behaviors (more marked in the adopted children), but whilst in the case of the adoptees the situation improved significantly after some certain time with their families, in the group of children who continue in centers the situation worsened significantly.

With regards to the effect of institutionalization, the results of the adoption group show that an earlier institutional entrance is marginally related to a greater manifestation of disinhibited behaviors at the time of placement in the adoptive family, result which is consistent with previous research (Rutter et al., 2007; Tizard & Hodges, 1978). In this study, the duration of institutionalization has not been found to be significantly related to the symptoms. However, our results show that for children in long-term foster centers disinhibited behaviors have increased from the initial point to the time of assessment, indicating that long-term exposure to institutional rearing has clear negative consequences.

The experience of abuse and neglect was marginally associated with the presence of inhibited behaviors in adopted children at the time of placement, a result previously reported in studies with children in foster families (Bruce et al., 2019; Zeanah et al., 2004).

Taken together, our results seem to reflect a clear association between the experience of institutionalization and DSED symptoms, given the relationship between the age at the beginning of institutionalization and the disinhibited behaviors in adopted children or the aggravation of these symptoms in children in long-term stays in centers, which would support the adaptive function of disinhibited behaviors in the institutional context (Chisholm, 1998; Minnis, 2018; Rutter et al., 2007). In turn, RAD symptomatology appeared more clearly associated with the experience of abuse (Zeanah et al., 2004).

Regarding main limitations of the study, firstly, the assessment of symptoms of RAD and DSED was based upon information provided by parents and caregivers, not through direct observation of the child. Secondly, the information concerning the initial symptoms was obtained through retrospective reports from parents and caregivers at the same time as the information on current symptomatology, and this might have influenced reporting. Another limitation of the study is the fact that the assessment has been carried out through different informants, parents (in the adoptive and community groups) vs. caregivers (in the residential care group). However, the absence of significant differences between the information provided by adoptive parents and caregivers in the centers on disinhibited behaviors at Wave 0, together with the changes in symptoms observed over time in the different groups, and the fact that

Table 3
Correlations between symptoms and children's characteristics.

Groups and wave	Symptoms	Age at Wave 1	Age at the start of institutionalization	Time in institution	Age at adoption	Time in adoptive family
IA-W0	Inhibited behaviors	0.16	−0.18	0.13	−0.07	0.24
	Disinhibited behaviors	−0.21	−0.32	0.20	−0.12	−0.08
IA-W1	Inhibited behaviors	−0.20	−0.09	−0.27	−0.34*	0.18
	Disinhibited behaviors	−0.11	−0.11	−0.04	−0.16	0.07
RC-W0	Inhibited behaviors	0.11	0.05	0.06		
	Disinhibited behaviors	0.16	0.11	0.03		
RC-W1	Inhibited behaviors	0.25	0.05	0.22		
	Disinhibited behaviors	0.13	−0.01	0.15		

Note: IA = International adopted group; RC = Residential Care Group; W0 = Wave 0; W1 = Wave 1.
Key:
* $p < .05$.

the questionnaire mainly refers to children's observable day-to-day behaviors, take us to believe that the information provided from different perspectives (parents, caregivers) is sufficiently comparable. With respect to the sample, the size of the groups is modest, which limits the potential for multivariate statistical analyses. Moreover, all adoptees came from the same country, Russia, so the results cannot be generalized to children adopted internationally from other countries. Although the information about pre-adoption circumstances of the adopted group is limited, as already stated, all the available evidence indicates that their background, with more socio-familiar adversity and less maltreatment, differs from that of the children in Spanish residential care, which could explain some of our findings. All these limitations must be taken into account when interpreting the results.

Further research is needed for both children adopted and in residential care regarding their attachment disorder symptomatology, as well as the relationships between these symptoms and other areas of development. Ongoing longitudinal research will provide a broader temporal perspective on these changes as a function of two such markedly different rearing contexts as family and residential care, especially in the case of internationally adopted children, to check if the improvement is maintained over time.

5. Conclusion

This study endorses policies promoting permanent family placement instead of long-term institutional care. With the relational stability it implies, adoption appears to be an effective intervention to facilitate processes of recovery of Trauma and Stressor-Related Disorders symptomatology after early adversity.

Declaration of competing interest

None.

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