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Parenting and emotional well-being of adoptive school-aged children: The mediating role of attachment

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ABSTRACT

This study focuses on the processes of adoptive parenting that affect children's emotional well-being. It aims to analyze the role of children's attachment as a mediator of the relationship between both parenting styles and parenting stress and children's positive and negative affect in adoptive families of school-aged children. The study included 322 Portuguese participants, divided into one group of adoptive parents (n = 135) and one comparison group of non-adoptive parents (n = 187); target-children were aged between 6 and 12 years. Self-report questionnaires were used to analyze the dimensions under study (parenting styles, parenting stress, children's attachment and children's emotional well-being). After conducting a preliminary analysis to identify potential differences between the adoptive and the non-adoptive parents, a mediation model was tested using the path analysis procedure. A baseline model was established, followed by a multi-group analysis in order to explore the model's invariance across the groups. Children's attachment mediated the relationship between parenting (styles and stress) and children's positive and negative affect. The multi-group analysis revealed that, for the adoptive group, both secure and anxious/ambivalent attachment mediated the association between parenting stress and negative affect; for the non-adoptive group, secure attachment was found to mediate the link between emotional warmth and positive affect. For both groups, the relationship between parenting stress and positive affect was mediated by secure attachment. Results pointed to the relevance of children's attachment in the association of parenting styles and parenting stress with children's emotional well-being. Moreover, differences concerning the mediation model emerged across the two groups, revealing that children's negative outcomes were better explained in the adoptive group. The results reinforce the importance of supporting adoptive parents after the adoption process.

1. Introduction

Parenting, in its multidimensionality, is of paramount importance, as it shapes diverse areas of children's development (Bornstein, 2006). Negative parenting, experienced by many adopted children in their birth families, such as abandonment, neglect, maltreatment, in addition to some institutional settings (e.g., intermittent care, negligence), tends to give rise to a number of side effects in terms of their development and well-being. Hence, being adopted by a responsive and warm family may serve to relieve those effects, enabling relationship representations and attachment bonds to be (re)constructed (e.g., Hodges, Steele, Hillman, Henderson, & Kaniuk, 2005). Despite the large volume of work geared towards the study of adoptive children's attachment and emotional recovery (e.g., Colvert et al., 2008; Rosnati, Montirosso, & Barni, 2008; Sharma, McGue, & Benson, 1996), including other fields beyond psychology, such as anthropology (e.g., Yngvesson, 2010) and sociology (e.g., Kirk, 1964), only more recently have studies taken an interest in the processes of adoptive parenting that explain children's emotional well-being (see Palacios & Brodzinsky, 2010). Following this recent research trend, the present study seeks to analyze the mediating role of children's attachment (secure, anxious/ambivalent, and avoidant patterns) in the relationship between both parenting styles (in its dimensions - emotional warmth, rejection and control attempts) and parenting stress (through its dimensions - parenting distress, parent-child dysfunctional interaction and difficult child) and children's positive and negative affect, by comparing the reports of Portuguese adoptive and non-adoptive parents of school-aged children.

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1.1. Adoption and children's emotional well-being

Children's emotional well-being has been related to various dimensions (e.g., life satisfaction, positive and negative affect, self-concept, self-esteem, optimism) approached through different lens (e.g., individual and social lens) (Upadhyay & Arya, 2015). Positive and negative affect, have proven to be particularly important indicators of psychological well-being development through infancy to adolescence, and later in adulthood (e.g., Davis & Suveg, 2014). While positive affect means an overall sense of well-being and includes emotions such as pleasure, engagement and enthusiasm, negative affect refers to negative feelings such as being upset, sad or feeling unpleasant (Watson & Tellegen, 1985). The literature has demonstrated that there is a strong link between positive affect and children's secure attachment (Rothbart & Bates, 2006) and positive psychosocial functioning (Davis & Suveg, 2014), which contributes to the promotion of adaptive development (Davis & Suveg, 2014). Notwithstanding, and although the literature refers to the importance of positive affect for children's emotional well-being, to the best of our knowledge, greater emphasis has been placed on children's negative emotionality in adoption research (e.g., Colvert et al., 2008; Sharma et al., 1996). For instance, in a study with adoptive and non-adoptive school-aged children, Rosnati et al. (2008) found that the former revealed more emotional problems than the latter. In their study on the trajectories of affectivity in adopted children, Colvert et al. (2008) found that at the age of 11 years, adoptees presented emotional difficulties that were not present at 6 years of age, thus suggesting an increase in these difficulties over time.

1.2. Adoptive children's attachment

The parent-child attachment relationship, i.e., the relationship that involves an affective bond between the child and the parent (or caregiver), and forms the basis for all future close relationships, providing an internal working model from which the child understands the social world (Bowlby, 1969), has been referred to as the cornerstone of healthy psychological adjustment (Brodzinsky, Smith, & Brodzinsky, 1998). An invested, caring and consistent caregiver can provide the type of relationship required to repair the insecure patterns of attachment which generally characterize adoptees (Dozier et al., 2009).

Adoptive children's attachment has been widely studied, and researchers have explored the effects of adoption in the recovery of dyadic relationships and other features of children's psychosocial adjustment, following a past marked by traumatic adversities and discontinuity in care and relationships. For instance, research has shown how integration into a new family gradually impacts the internal working models of attachment in adopted children, reflecting an increase in secure attachment behaviors and more positive representations of relationships (e.g., Barone & Lionetti, 2012; Carré, Tessier, & Tarabulsy, 2015; Garvin, Tarullo, Ryzin, & Gunnar, 2012; Hodges et al., 2005). However, these new representations apparently do not replace the previous ones, but rather compete with them (Hodges et al., 2005; Palacios, Román, Moreno, & León, 2009), especially for children who have been previously maltreated and/or who have spent more time in the birth family or in institutions, compared with those placed in their new families at an earlier age (van den Dries, Juffer, & van IJzendoorn, & Bakermans-Kranenburg, 2009). In fact, despite the (re)construction of attachment patterns, van den Dries et al. (2009), concluded, in two meta-analyses, that adoptive children displayed a pattern of insecure attachment in significantly more cases when compared to their non-adopted peers. Additionally, some studies on changes in attachment representations in adopted school-aged children found that emotional recovery may take longer than recovery in other domains (e.g., physical growth, cognitive development). These studies also discovered that an increase in secure attachment representations was more evident than a decrease in insecure representations (Hodges et al., 2005; Román, Palacios, Moreno, & López, 2012; Steele et al., 2008).

The quality of attachment has been linked to children's emotionality. For instance, Panfile and Laible (2012) studied the mediating role of emotion regulation in the relationship between attachment and empathy, in a sample of non-adopted children, and found that more secure children were rated higher in emotion regulation. Additionally, Barone and Lionetti (2012), using a sample of adoptive children, found that children who demonstrated a disorganized pattern in their mental representation of attachment performed worse in a task of emotional understanding, thus highlighting the link between these two variables.

Children's internal working attachment models depend, to a large extent, on patterns of caregiver responses to their requests and needs (Main, Kaplan, & Cassidy, 1985). In other words, children's attachment, in addition to other outcomes (e.g., positive affect, externalizing and internalizing behaviors), has been associated with the quality of parenting (Roberson, 2006; Schiffrin, 2014; Tan, Camras, Deng, Zhang, & Lu, 2012), namely expressed through parenting styles and parenting stress measures.

1.3. Parenting styles in adoptive families

Most research on parenting styles has highlighted two dimensions - control/demandingness and support/responsiveness (e.g., Baumrind, Larzelere, & Owens, 2010; Maccoby & Martin, 1983). Control has been defined as both inductive discipline, that serves the purpose of stimulating responsible behavior within the child, and shaping goal-oriented activity (e.g., Baumrind, 1989; Cummings, Davies, & Campbell, 2000; Maccoby & Martin, 1983), and as coercive, restrictive discipline, emphasizing negative aspects, such as harsh punishment (e.g., Maccoby & Martin, 1983). Support, on the other hand, has been described as a parental attitude which involves affection, acceptance and warmth at one end of the continuum, and rejection and hostility at the opposite end (e.g., Muris, Meesters, & von Brakel, 2003). Several authors have highlighted the primordial role of support in regulating negative affect, particularly when children have suffered traumatic experiences – as is the case of many adoptive children - thereby contributing to their emotional recovery and adjustment (see Kawabata, Alink, Tseng, Van IJzendoorn, & Crick, 2011).

Literature has shown that adoptive families prefer authoritative parenting styles over the permissive or authoritarian (e.g., Solomon & Poirier, 2006; Tan et al., 2012). Dhavale, Bhagat, and Thakkar (2005) compared the parenting practices of parents of 30 adoptive children and those of 30 non-adoptive children (aged between five and 10 years) and found no differences between the two groups. Similarly, in a study on family interactions, comparing families with adopted children and families with biological children, Rueter, Keyes, Iacono, and McGue (2009) found similar levels of warmth, supportive parent communication and parental control.

The results of a study conducted by Tan et al. (2012) demonstrated that in both adoptive and non-adoptive families, negative parenting (defined by authoritarian and permissive patterns) was positively associated with children's behavioral problems, while authoritative parenting had a negative relationship with this outcome. Lipscomb et al. (2011) conducted a longitudinal study with adoptive families to ascertain the trajectories of children's emotional well-being, parenting efficacy, and over-reactive parenting. The results, obtained from an assessment at three different points in time (when children were 9, 18, and 27 months old), showed that decreased parenting efficacy and increased parental over-reactivity were associated with an increase in children's emotional negativity.

1.4. Parenting stress in adoptive families

Along with parenting styles, parenting stress has been associated with children's well-being in adoptive families (e.g., Deater-Deckard,

1998; Mainemer, Gilman, & Ames, 1998). In a review on the effects of stressed parenting, Deater-Deckard (1998) suggested that parenting stress contributes to poorer parenting - highly stressed parents are more authoritarian and less responsive - which, in turn, has a negative impact on children's well-being. Similarly, Pesonen et al. (2008) studied a group of non-adoptive mother-infant dyads over a period of five years, beginning when children were approximately six months of age, and found that higher maternal stress increased negative affectivity in children, over that period of time. Moreover, in a study with non-adoptive mothers and their three-year-old children, Tharner et al. (2012) found that children's attachment patterns moderated the effect of parenting stress on children's emotional and behavioral problems. The authors noted that parenting stress was related more to internalizing and externalizing problems in the presence of insecure attachment, while secure attachment appeared to play a buffering role.

As for the comparison of parenting stress levels between the adoptive and non-adoptive parent groups, the literature points to a number of contradictory findings. For instance, Judge (2003) concluded that adoptive parents did not differ from a normative sample in terms of the global level of parenting stress. Similarly, León, Palacios, Román, Moreno, and Peñarrubia (2015) found the same lack of significant differences between adoptive and non-adoptive parents in a longitudinal study. On the other hand, in some comparative studies of adoptive and non-adoptive families, both lower (e.g., Palacios & Sánchez-Sandoval, 2006; Rosnati, Ranieri, & Barni, 2013) and higher (e.g., Harris-Waller, Granger, & Gurney-Smith, 2016; McGlone, Santos, Kazama, Fong, & Mueller, 2002; Santos-Nunes, Narciso, Vieira-Santos, & Roberto, 2016) levels of parenting stress were observed. Children's characteristics and adoption-related variables may contribute to this apparent disparity in these studies' findings. For instance, higher levels of parenting stress in adoptive parents could be explained by children's special needs (Palacios & Sánchez-Sandoval, 2006). It should be noted that in the context of adoption, “special needs” may refer to specific characteristics in children that make them more difficult to place - e.g., older children, sibling groups, children with medical conditions (e.g., O'Dell, McCall, & Groark, 2015). The strains associated with children's age may also be a contributory factor to the increase of parenting stress in adoptive parents - school-age proves to be a critical phase in the process of adjustment to adoption (e.g., Brodzinsky et al., 1998). In fact, during this phase, children's sensitivity to the adoption issue is heightened and they become more aware of adoption implications, namely in terms of relinquishment (Palacios & Sanchez-Sandoval, 2005). Consequently, many of the school-aged adopted children's problems may be related to this new and painful awareness.

Furthermore, and in the same vein, a meaningful finding on parenting stress has emerged in adoption research - studies have highlighted child-related stress (i.e., parental stress related to parents' perceptions of their children's characteristics) as being the most significant component of parenting stress (e.g., Judge, 2003; León et al., 2015; Mainemer et al., 1998; McGlone et al., 2002; Santos-Nunes et al., 2016). For instance, in a sample of mother-father dyads who had adopted children from Eastern Europe, Judge (2003) observed that reports of more behavioral problems were associated with an increase in the stress of both the mother and the father, and specifically child-related stress. These results may be interpreted in light of the literature that presents adoptees as having more difficulties than their non-adopted peers (e.g., Harris-Waller et al., 2016; Santos-Nunes et al., 2016). Another important finding supporting the link between parenting stress and children's behavior has been described in a study by Neece, Green, and Baker (2012), with a sample of non-adopted children. The authors suggest that parenting stress is both an antecedent and a consequence of child behavior problems and highlight that this bidirectional relationship varies across the life stages and according to the type of child behavior problems. For instance, children's externalizing behavior predicted parenting stress in later childhood (after 6 years) but not in early childhood (from 3 to 5 years).

1.5. The current study

This study sets out to contribute to research on family adoption, focusing on the processes of adoptive parenting which affect children's emotional well-being, namely positive and negative affect. Therefore, following a preliminary analysis to explore the differences between adoptive and non-adoptive parents (comparison group) in relation to the variables at hand, the main objective of the study was addressed, that is, an examination of the mediating role of children's attachment in the relationship between both parenting styles and parenting stress and children's emotional well-being in adoptive families.

Regarding the preliminary analysis, we expected adoptive parents to report significantly more difficulties concerning their children's negative emotionality (i.e., more negative affect) (H1a) and attachment insecurity (i.e., more anxious/ambivalent and avoidant patterns) (H1b), when compared to non-adoptive parents, in line with the reviewed literature (e.g., Rosnati et al., 2008; Sharma et al., 1996; van den Dries et al., 2009) that reported more emotional and attachment problems in adoptive children than in their non-adopted peers. We also expected adoptive parents to reveal similar results to the comparison group regarding emotional warmth, control attempts and rejection (H1c), once again in keeping with the findings specified in the literature (Dhavale et al., 2005; Rueter et al., 2009). Despite the disparity of results related to the differences between adopted and non-adopted groups in the levels of parenting stress, we expected adoptive parents to present higher levels of parenting stress (H1d), not only in view of similar results found in earlier studies (e.g., Harris-Waller et al., 2016; McGlone et al., 2002; Santos-Nunes et al., 2016), but also due to the fact that research has pointed to strong links between parenting stress and children's outcomes (e.g., Judge, 2003; Neece et al., 2012). In the particular case of the adoptive parents who participated in the present study, their children displayed a number of characteristics that have been strongly associated with behavioral problems in adopted children (e.g., school-age; Brodzinsky et al., 1998), which could lead to an increase in parenting stress.

In relation to the main objective of this study, the research results showing the effect of parenting in adoptive children's outcomes (e.g., social competence, well-being, internalizing and externalizing problems, anxiety) through children's attachment (Bosmans, Braet, Beyers, Van Leeuwen, & Van Vlierberghe, 2011; Breinholst, Esbjørn, & Reinholdt-Dunne, 2015) were taken into account and a general model (see Fig. 1) assuming that attachment (secure, anxious/ambivalent and avoidant) would mediate the association between both parenting styles and parenting stress and children's positive and negative affect (H2) was tested. Considering the proposed general model, we hypothesized (H2a) that it would not present an equal fit for adoptive and non-adoptive parents. Following previous empirical evidence, pointing to a higher level of adoptive children's difficulties in emotional well-being and attachment (e.g., Barone & Lionetti, 2012; Palacios & Brodzinsky, 2010; Rosnati et al., 2008; Santos-Nunes et al., 2016; van den Dries et al., 2009), higher levels of parenting stress in adoptive parents when compared to non-adoptive parents (e.g., Harris-

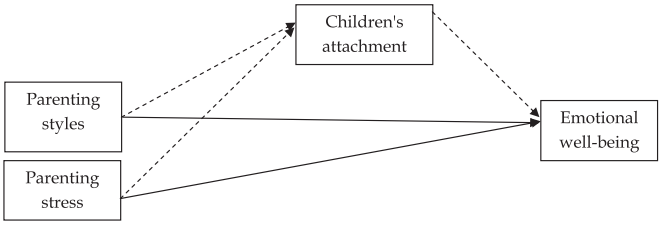

Fig. 1. Proposed mediation model.
Note: Dashed lines represent mediated paths and solid lines represent direct paths.

Waller et al., 2016; Santos-Nunes et al., 2016) and to the mediating role of adoptive children's attachment in the association between parenting and children's outcomes (Bosmans et al., 2011; Breinholst et al., 2015), we expected: secure attachment to mediate the association of both parenting styles (particularly emotional warmth) and parenting stress with positive and negative affect in both groups (H2b); insecure attachment (particularly anxious/ambivalent) to mediate the association of both parenting styles (particularly emotional warmth) and parenting stress with positive and negative affect in the adoptive group (H2c).

2. Method

2.1. Participants

The participants consisted of 322 Portuguese parents divided into two groups, one composed of 135 adoptive parents (domestic adoption) and the other of 187 non-adoptive (biological) parents (comparison group). The following inclusion criteria were defined: 1) living in Portugal; 2) having children aged between 6 and 12 years; and 3) not being pregnant. Additionally, for the adoptive parents group, it was required that: 4) the adoptive child had been integrated in the family for at least two years; and 5) parents were not in the process of integrating (an)other adoptive child(ren). As shown in Table 1, participants were mostly Caucasian, female and married in both groups (with no significant differences between groups; see Table 1), which mirrors the distribution tendency of the Portuguese population (Fundação Francisco Manuel dos Santos [Francisco Manuel dos Santos Foundation], 2017), and had a high socio-economic status (SES; Simões, 1994). Parents' ages ranged from 26 to 60 years, with parents in the adoptive group proving to be significantly older than those in the non-adoptive group (Table 1).

Concerning target children's gender, there were slightly more girls in the study than boys (adoptive girls - 50.4%, non-adoptive girls - 53.2%), although the difference was not significant, $\chi^2(1) = 0.33$, $p = 0.57$. More precisely, due to the aims of the present study, children's age ranged from 6 to 12 years, $M(SD)_{\text{Adoptive children's age}} = 8.47$ (1.78); $M(SD)_{\text{Non-adoptive children's age}} = 8.49$ (1.93); $t(319) = 0.11$, $p = 0.92$. In the present study, children's age when adopted ranged from 1 month to 10 years ($M = 2.62$, $SD = 2.32$), and they had been integrated in the family for 6 years, on average ($M = 6.01$, $SD = 1.93$; range: 2–12 years). These data also reflect the adoption figures in Portugal where the majority of children are adopted before the age of 6 years, and adoption candidates tend to prefer to adopt children under the age of three years (Soares, Barbosa-Ducharne, Palacios, & Pacheco, 2017). In this study, adoptive parents utilized more professional support (e.g., school tutoring, psychological and psychiatric support, speech therapy) for their children than non-adoptive parents, adoptive - 66.4%, non-adoptive - 29.6%; $\chi^2(1) = 37.94$, $p < 0.001$. Moreover, all the adoptions were domestic, thus mirroring this adoption tendency in Portugal (Pastor, 2014) and were all closed. In fact, open adoptions are not permitted in Portugal. Additionally, Portuguese children who are placed for adoption are sometimes considered to be "special needs children" due to the severity of their past experiences, such as extended periods of negligence and maltreatment in the birth family and in their foster care placement (O'Dell et al., 2015).

Table 1
Participants' characteristics.

Characteristic	Adoptive parents (n = 135)		Non-adoptive parents (n = 187)		χ^2/F	df
	n	%	N	%		
Gender					18.79***	1
Male	54	40.0	34	18.2		
Female	81	60.0	153	81.8		
Ethnicity					0.47	
Caucasian	125	97.6	179	96.8		
African	1	0.8	3	1.6		
Other	2	1.6	3	1.6		
SES					20.96***	2
Low	20	14.9	6	3.2		
Medium	35	26.1	32	17.1		
High	79	59.0	149	79.7		
Marital Status					4.81	3
Married	120	88.9	158	85.0		
Single	9	6.7	8	4.3		
Divorced	6	4.4	20	10.7		
	$M(SD)$		$M(SD)$		F	df
Age (years)	44.64 (6.03)		40.62 (4.75)		− 6.39***	241.92

Note. The n of variables does not total 135 or 187due to missing values. The number of missing responses ranged from 0 to 7.
*** $p < 0.001$.

2.2. Procedures

This study employed a convenience sampling strategy that included two procedures: the snowball sampling procedure, through the authors' professional and informal networks for the recruitment of both adoptive and non-adoptive parents; and formal invitations sent by national adoption agencies via their mailing services. The participation of all parents was voluntary. The participants completed a set of questionnaires in one of two provided formats: paper-and-pencil and online. Most adoptive parents and a small number of non-adoptive parents filled in the questionnaires using the paper-and-pencil version. The documents were posted to their respective addresses along with a prepaid return envelope. Before completing the questionnaires, they were required to read a detailed presentation of the aims and procedures of the study and to provide consent for their participation. An e-mail address was provided so that participants could raise any doubts or considerations, and so that they might have the possibility of contacting the Clinical Community Service of the Faculty of Psychology of Lisbon University. The study followed the ethical principles of the American Psychological Association (2002, 2010). Additionally, approval was obtained from the Ethical Committee of the Faculty of Psychology (University of Lisbon) as well as authorization from the national adoption agencies. Ethics regarding online data collection were considered, and the Barchard (2003) guidelines were followed.

2.3. Measures

2.3.1. Sociodemographic questionnaire

Participants were asked to fill in a form with demographic information (e.g., the age and gender of the participant and of the child) and adoption-related data (e.g., the child's age when adopted).

2.3.2. Parents' measures

The *Egna Minnen Beträffande Uppfostran* - Parent version (EMBU - P; Castro et al., 1990; Canavarro & Pereira, 2007) evaluates parents' perceptions of their rearing patterns. Parents answered 42 items with a Likert-type scale ranging from 1 (*no*, *never*) to 4 (*yes*, *always*). The instrument is composed of three subscales - Emotional Warmth (14 items; e.g., *You have praised your child*), Rejection (17 items; e.g., *You have been abrupt to your child*) and Control Attempts (11 items; e.g., *You have wanted to decide how your child should be dressed or how he/she should look*). Higher results indicate a higher level of the specific dimension assessed by the subscale. In this study, the reliability values for adoptive parents were $\alpha_{\text{Emotional Warmth}} = 0.81$, $\alpha_{\text{Rejection}} = 0.78$, $\alpha_{\text{Control Attempts}} = 0.65$, and those for non-adoptive parents were $\alpha_{\text{Emotional Warmth}} = 0.80$, $\alpha_{\text{Rejection}} = 0.67$, $\alpha_{\text{Control Attempts}} = 0.65$. The measures with values below 0.70 were maintained as they were considered to fall within the acceptable limits (i.e., between 0.60 and 0.70) indicated by Nunnally and Bernstein (1994).

The *Parenting Stress Index - Short Form* (PSI-SF, Abidin, 1995;

Portuguese version: Santos, 2008) is a 36-item instrument, for which answers rely on a 5-point Likert-type scale (1 - *strongly disagree* to 5 - *strongly agree*). The items are divided into three subscales that assess parental role- related stress (Parental Distress - 12 items; e.g., "*I feel trapped by my responsibilities as a parent*"), the perception of the child (Difficult Child - 12 items; e.g., "*My child makes more demands on me than most children*") and factors within the parent-child relationship (Parent-Child Dysfunctional Interaction - 12 items; e.g., "*My child rarely does things for me that make me feel good*"). The subscales can be aggregated to give a global score for parenting stress. This global score was used in the present study; higher scores evidence higher levels of parenting stress. In this study, the total scale presented good reliability, $\alpha_{\text{Adoptive parents}} = 0.91$, $\alpha_{\text{Non-adoptive parents}} = 0.89$.

2.3.3. Children's measures

The Inventory of Attachment in Childhood and Adolescence (IACA; Carvalho, 2007) assesses the attachment behavior of children and adolescents based on parental reports. The instrument includes 37 items answered with recourse to a 5-point Likert-type scale, ranging from 1 (*never*) to 5 (*always*). The items are divided into three categories - Secure Attachment (14 items; e.g., *He/She can count on his/her friends whenever necessary*), Anxious/Ambivalent Attachment (13 items; e.g., *He/She worries he/she might not be accepted by others*) and Avoidant Attachment (10 items; e.g., *He/She prefers not to depend on other people*). Higher results point to a higher level of the specific dimension of attachment. In this study, the *Cronbach's* alpha values were $\alpha_{\text{Secure Attachment}} = 0.88$, $\alpha_{\text{Anxious/Ambivalent Attachment}} = 0.85$, $\alpha_{\text{Avoidant Attachment}} = 0.74$ for adoptive parents, and $\alpha_{\text{Secure Attachment}} = 0.89$, $\alpha_{\text{Anxious/Ambivalent Attachment}} = 0.83$, $\alpha_{\text{Avoidant Attachment}} = 0.68$, for non-adoptive parents.

The Positive and Negative Affect Schedule for Children-Parent version - Portuguese short version (PANAS-C-P - PSV, Santos-Nunes, Narciso, Vieira-Santos, & Pereira, 2017) is a short-form of the PANAS-C-P (Ebesutani, Okamura, Higa-McMillan, & Chorpita, 2011) studied in two groups: adoptive and biological parents. It is composed of two subscales - Positive Affect (PA; e.g., *Joyful*, *Happy*) and Negative Affect (NA; e.g., *Nervous*, *Upset*) - with five items each, to which parents must respond using a 5-point Likert-type scale (1 - *very slightly* or *not at all* to 5 - *extremely*), considering how their child had felt in the past two weeks. The PANAS-C-P subscales exhibited good internal consistency in this study: adoptive parents - $\alpha_{PA} = 0.81$, $\alpha_{NA} = 0.79$; non-adoptive parents - $\alpha_{PA} = 0.81$, $\alpha_{NA} = 0.72$.

2.4. Data analysis

Statistical analyses were performed using SPSS (v.23, SPSS Inc., Chicago, IL) and the lavaan latent model analysis package (Rosseel, 2012) designed for R environment (R Core Team, 2015). We performed a preliminary analysis by comparing the two groups using a *t*-test analysis, considering results for *p*-values under 0.05 as revealing significant differences between the groups, in the variables under study (i.e., parenting styles, parenting stress, children's attachment patterns and children's PA and NA). Additionally, a bivariate correlation (Pearson coefficient) was run to assess relations among the variables under study. Given that in this study the percentage of items with missing values ranged from 0% to 1.6%, we used imputation of the item mean to deal with the incomplete data (Hawthorne & Elliott, 2005). Our hypothesized model (Fig. 1) was tested using a path analysis (with observed variables), instead of a full structural latent model, due to our small sample size (Glazer & Beehr, 2005). We estimated a model with parenting variables (parenting styles - emotional warmth, control attempts and rejection - and parenting stress) as predictors, children's type of attachment (secure, anxious/ambivalent and avoidant) as the mediator, and children's affect (positive and negative affect) as the outcome variable. Analytically, we performed a multigroup path analysis to check if the inter-relationships between the model variables changed across adoptive and non-adoptive parents. This test was performed gradually. First, we assessed the overall fit of the theoretical model by evaluating its adjustment to the full sample comprising both groups of parents. Multigroup analyses were then conducted, and an unconstrained model was estimated across both groups of parents. After checking the fit of this freely estimated model, an additional model was estimated, where all parameters were constrained to be equal across adoptive and non-adoptive parents. Finally, both models were compared, and whenever the unconstrained model presented a better fit, group differences were verified by identifying which mediated paths presented a different pattern across the groups. More precisely, significant mediated paths were constrained to be equal across the groups and then compared to the fully unconstrained model to identify which specific parameters were varying.

All analyses used Maximum Likelihood as the estimator to fit the models. To evaluate the overall model fit, we used the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA) with 90% confidence interval, the standardized root mean square residual (SRMR) and the χ^2/df ratio. We took several cut-off values into account to check for model suitability, namely: 1) CFI and TLI values equal to (or above) 0.90 (Bentler, 1990) and 2) RMSEA and SRMR values below 0.08 (Hu & Bentler, 1999). As our model implied mediation tests, 95% bias-corrected bootstrap confidence intervals based on 1000 samples were used to check the significance of indirect effects (Hayes, 2013).

3. Results

3.1. Preliminary analyses

Means and standard deviations and bivariate correlations are reported in Table 2 and Table 3, respectively. When comparing variable means for the two groups, adoptive parents reported significantly less emotional warmth, more parenting stress, anxious/ambivalent and avoidant attachment patterns, and also more NA in their children (Table 2).

3.2. Multigroup path analysis

Regarding the mediation analysis, the hypothesized model (Fig. 1) was tested using the complete sample, and was found to fit the data well (Table 4). Indirect paths from emotional warmth, control attempts and parenting stress, via secure attachment and via anxious/ambivalent attachment to PA and NA were significant: the secure attachment pattern mediated the relationship of emotional warmth (indirect

Table 2
Means and standard deviations by group and *t*-test values.

Variable	AP	NAP	*t*-Test (*df*)
	M(*SD*)	*M*(*SD*)	
Emotional warmth	3.40 (0.32)	3.51 (0.29)	3.06** (320)
Control attempts	2.47 (0.38)	2.41 (0.36)	− 1.50 (320)
Rejection	1.64 (0.27)	1.60(0.22)	− 1.49 (320)
Parenting stress	1.83 (0.45)	1.70 (0.39)	− 2.82** (262.49)
Secure attachment pattern	3.82 (0.63)	3.88 (0.63)	0.81 (320)
Anxious/ambivalent attachment pattern	2.22 (0.67)	1.81 (0.50)	− 5.92*** (235.52)
Avoidant attachment pattern	2.18 (0.55)	1.96 (0.43)	− 3.95*** (244.97)
Positive affect	20.58 (2.87)	20.35 (2.90)	− 0.71 (320)
Negative affect	7.67 (2.89)	6.91 (2.40)	− 2.58** (320)

Note: AP = adoptive parents, $n = 135$; NAP = non-adoptive parents, $n = 187$.
** $p < 0.01$.
*** $p < 0.001$.

Table 3
Bivariate correlations for variables under study by group.

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Emotional warmth											
2. Control attempts	0.27**/0.28**										
3. Rejection	− 0.25**/ − 0.34**	0.20*/0.21**									
4. Parenting stress	− 0.49**/ − 0.44**	− 0.04/0.04	0.49**/0.54**								
5. Secure	0.43**/0.57**	0.20*/0.13	− 0.33**/ − 0.36**	− 0.53**/ − 0.63**							
6. Anxious/ Ambivalent	− 0.17*/ − 0.26**	0.16/0.21**	0.37**/0.37**	0.48**/0.45**	− 0.25**/ − 0.40**						
7. Avoidant	− 0.19*/ − 0.19**	0.21*/-0.01	0.31**/0.17*	0.34**/0.22**	− 0.21*/ − 0.31**	0.45**/0.29**					
8. Positive affect	0.44**/0.44**	0.17/0.15*	− 0.27**/ − 0.18*	− 0.39**/ − 0.28**	0.53**/0.54**	− 0.09/ − 0.20**	− 0.22*/ − 0.26**				
9. Negative affect	− 0.19*/ − 0.32	− 0.03/0.01	0.39**/0.37**	0.55**/0.49**	− 0.43**/ − 0.43**	0.48**/0.35**	0.22*/0.18*	− 0.24**/ − 0.20**			

Note: Correlation values to the left of the bar refer to the adoptive parents group, $n = 135$. Correlation values to the right of the bar refer to the non-adoptive parents group, $n = 187$. Secure, anxious/ambivalent and avoidant refer to children's attachment patterns.
* $p < 0.05$.
** $p < 0.01$.

effect = 1.00, β = 0.10, SE = 0.29, $p = 0.001$, 95% CI [0.49, 1.6]), control attempts (indirect effect = 0.40, β = 0.05, SE = 0.17, $p = 0.020$, 95% CI [0.07, 0.73]) and parenting stress (indirect effect = − 1.29, β = − 0.18, SE = 0.22, $p < 0.001$, 95% CI [− 1.78, − 0.85]) with PA, and the relationship of emotional warmth (indirect effect = − 0.37, β = − 0.04, SE = 0.17, $p = 0.035$, 95% CI [− 0.74, − 0.07]) and parenting stress (indirect effect = 0.47, β = 0.07, SE = 0.19, $p = 0.013$, 95% CI [0.10, 0.87]) with NA. The anxious/ambivalent attachment pattern mediated the relationship of control attempts (indirect effect = 0.32, β = 0.04, SE = 0.13, $p = 0.020$, 95% CI [0.11, 0.61]) and parenting stress (indirect effect = 0.55, β = 0.08, SE = 0.18, $p = 0.002$, 95% CI [0.23, 0.96]) with NA.

Multigroup analyses were performed to determine whether the proposed mediation model differed for adoptive and non-adoptive parents. Therefore, in order to establish a comparison baseline model, a fully unconstrained path analysis (Fig. 2), in which all paths were allowed to vary across groups was specified, demonstrating good fit to the data (Table 4). In this model (unconstrained model), emotional warmth was shown to be positively associated with children's PA, $\beta_{adoptive} = 0.20$, $p = 0.017$, $\beta_{non\text{-}adoptive} = 0.20$, $p = 0.008$, and with children's secure attachment pattern for both adoptive and non-adoptive parents; parenting stress was inversely associated with children's secure attachment pattern, which in turn was positively associated with PA (Fig. 2); moreover, parenting stress displayed a positive association with children's anxious/ambivalent attachment pattern, and children's NA, $\beta_{adoptive} = 0.32$, $p = 0.001$, $\beta_{non\text{-}adoptive} = 0.25$, $p = 0.005$. For adoptive parents only, control attempts showed a positive association with children's secure and avoidant attachment patterns, and, in turn, secure attachment showed a negative association with NA; parenting stress was positively associated with avoidant attachment and with children's anxious/ambivalent attachment pattern and the latter, in turn, revealed a positive association with children's NA. Conversely, for non-adoptive parents alone, emotional warmth was inversely associated with children's anxious/ambivalent pattern, and control attempts were positively associated with this attachment pattern.

Note. Parameters in bold are for adoptive parents; results for non-adoptive parents are presented below, after the bar.

$p < {}^{*}0.05$. $^{**}p < 0.01$. $^{***}p < 0.001$.

This baseline model was then compared to a fully constrained model, where all the parameters (regression coefficients, variances, covariances) were set to be equal across the two groups. The constrained model presented a worse fit to the data (Table 4). Furthermore, the chi-square difference between the fully constrained model and the fully unconstrained model was significant (Table 4). These results indicated that there were probably differences in the way the model worked in the two groups under study. Therefore, we then analyzed which mediated path(s) significantly differed between adoptive and non-adoptive parents by constraining the mediated parameters at once and comparing them to a fully unconstrained model. This model, when compared to the unconstrained model, presented a worse fit to the data (Table 4), with significant chi-square differences between models (Table 4). Hence, our hypothesized mediation model performed differently across the groups in three mediated paths: for adoptive parents the effect of parenting stress on NA was mediated by children's secure attachment (indirect effect = 0.51, β = 0.08 SE = 0.23, $p = 0.031$, 95% CI [0.05, 0.96]) and by children's anxiety/ambivalence (indirect effect = 0.81, β = 0.12, SE = 0.31, $p = 0.009$, 95% CI [0.26, 1.4]). For non-adoptive families, the effect of emotional warmth on PA was

Table 4
Fit indices for mediation models.

Model	χ^2 (df)	CFI	TLI	RMSEA [90% CI]	SRMR	χ^2 (df) $_{diff}$
1. Model with complete sample	3.65 (3)	0.99	0.99	0.02 [0.00, 0.10]	0.01	
2. Multigroup analysis - unconstrained model	11.53 (6)	0.99	0.91	0.07 [0.00, 0.14]	0.02	
3. Multigroup analysis - fully constrained model	64.94 (24)***	0.94	0.84	0.10 [0.07, 0.13]	0.10	
Differences between fully constrained and unconstrained models						53.41 (18)***
4. Multigroup analysis - partially constrained model	32.31 (16)	0.98	0.90	0.08 [0.03, 0.11]	0.04	
Differences between partially constrained and unconstrained models						20.78 (10)*

Note: Partially constrained model refers to the model in which the parameters of the mediated path(s), that significantly differed between adoptive and non-adoptive parents, was/were constrained at once.
* $p < 0.05$.
*** $p < 0.001$.

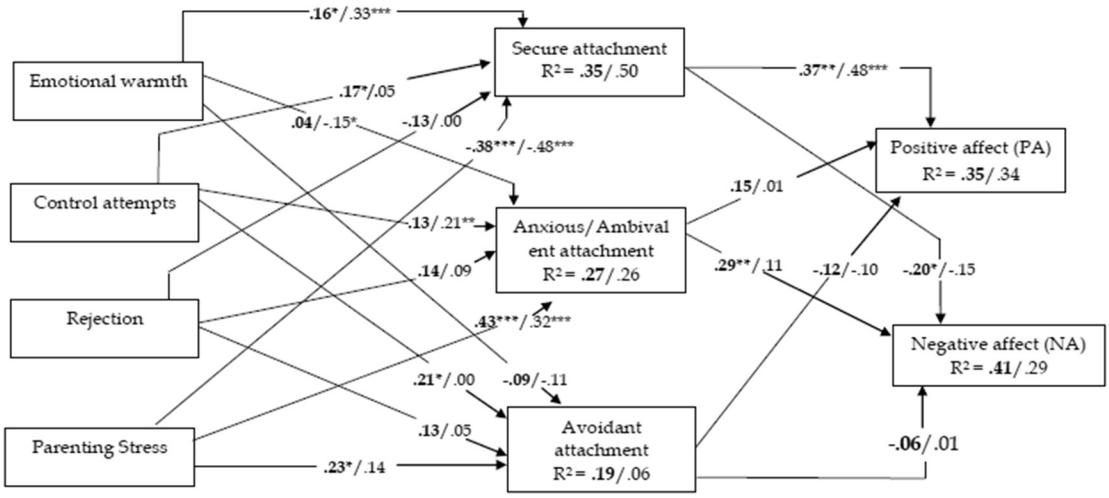

Fig. 2. Multi group analysis - indirect effects of the mediation model by group (adoptive vs. non-adoptive).

mediated by children's secure attachment (indirect effect = 1.58, β = 0.16, SE = 0.50, p = 0.001, 95% CI [0.71, 2.6]). An additional significant indirect effect was detected, however it was consistent across the groups - children's secure attachment mediated the association between parenting stress and PA, for both non-adoptive and adoptive families (indirect $effect_{Non\text{-}adoptive} = -1.70$, $\beta = -0.23$, SE = 0.35, $p \leq 0.001$, 95% CI [−2.3, −1.0]; indirect $effect_{Adoptive} = -0.91$, $\beta = -0.14$ SE = 0.32, p = 0.004, 95% CI [−1.6, −0.36]).

The proportion of variance in the outcomes and mediators that were explained by the model also differed across the groups, particularly the negative outcomes which appeared to be better explained in the adoptive parents group, while positive outcomes were better explained in the non-adoptive families (Fig. 2).

4. Discussion

This study reports an analysis of the processes between parenting (in multiple dimensions) and children's emotional well-being, considering both positive and negative affect (rather than solely the latter). We analyzed the links between parenting styles (i.e., emotional warmth, control attempts and rejection) and stress and children's positive and negative affect, via the effect of children's attachment (i.e., secure, anxious/ambivalent and avoidant patterns). A preliminary analysis enabled us to analyze the results of adoptive parents for the variables under study, via a comparison with non-adoptive parents' results. We then used a path analysis methodology to test a hypothesized model (Fig. 1), followed by a multigroup analysis to investigate its invariance across the two groups - adoptive and non-adoptive parents.

Adoptive parents, when compared to non-adoptive parents, revealed more negative affect and identified more insecure attachment (anxious/ambivalent and avoidant patterns) in their children, confirming the pattern of results expected in hypotheses 1a and 1b, respectively. These results are in line with prior research that highlighted more difficulties in adopted children's outcomes, when compared to non-adopted children (e.g., Palacios & Brodzinsky, 2010; Rosnati et al., 2008; Santos-Nunes et al., 2016; Sharma et al., 1996; van den Dries et al., 2009).

The hypothesis that adoptive and non-adoptive parents would demonstrate similar parenting styles - emotional warmth, control attempts and rejection - (H1c) was partially supported since, although similar scores were found for control attempts and rejection, adoptive parents revealed less emotional warmth. This result for emotional warmth may be due to the stress inherent to adoption, namely the children's difficulties stemming from the adversities experienced in their past. It may also be that adoptive parents tend to reveal lower levels of emotional warmth due to their acknowledgement that the lack of affect that characterized their children's previous history increases the demands they place on themselves in terms of parenting.

The hypothesis that adoptive parents would present higher levels of parenting stress (H1d) was supported. In fact, as presented earlier in this paper, although some studies have highlighted an absence of differences in parenting stress between adoptive and non-adoptive parents (e.g., Judge, 2003; León et al., 2015), others have found that adoptive parents evidence higher levels of stress as far as parenting is concerned, mostly due to children's difficulties and characteristics (e.g., Harris-Waller et al., 2016; León et al., 2015; Mainemer et al., 1998; McGlone et al., 2002; Santos-Nunes et al., 2016). It is important to note that the results of the present study refer to parents of school-aged children which, as mentioned above, has been indicated in the literature as a critical phase for adoptive children's adjustment, since a new and painful awareness of adoption implications begins to emerge (Palacios & Sanchez-Sandoval, 2005). Additionally, most of the Portuguese children placed in adoptive families may fall under the “special needs” category (O'Dell et al., 2015), due to the harshness of their pre-adoption histories, which contributes to higher parenting stress. Moreover, as also aforementioned, a recent study using a sample of non-adopted children has supported the link between parenting stress and children's behavior, further pointing to a bidirectional relationship between these variables (e.g., Neece et al., 2012).

Regarding the proposed general model (H2), the results support hypothesis 2a, which estimated that it would fit differently in the adoptive and non-adoptive groups. This is in line with the findings of previous research which emphasizes the specificities of parenting processes in adoptive families, mainly due to children's attachment difficulties and higher levels of parenting stress (e.g., Harris-Waller et al., 2016; Santos-Nunes et al., 2016). Notwithstanding, the specific hypotheses were only partially supported. It was hypothesized that secure attachment would mediate the association of both parenting styles (particularly emotional warmth) and parenting stress with positive and negative affect in both groups (H2b). The results showed that in the adoptive parents group, secure attachment was a mediator of the relationship between parenting stress and children's positive and negative affect. In the introductory section of the present study, an analysis of earlier literature revealed that parenting stress has been directly associated with children's negative outcomes, such as negative affect (Pesonen et al., 2008) or behavioral problems (Judge, 2003). The results of the present study highlight the mediating role of attachment between parenting and children's outcomes in a sample of adoptive families with school-aged children. The role of secure attachment as a

mediator between parenting stress and positive affect was also revealed in the non-adoptive parents group. These results reinforce the aforementioned findings of Pesonen et al. (2008), which reported a decrease in children's positive affect caused by higher levels of maternal stress. They also extend the aforementioned findings of Tharner et al. (2012), which refer to children's secure attachment as a moderator of the impact of parenting stress on children's positive affect. In the non-adoptive parents group, the results also showed that secure attachment mediates the relationship between emotional warmth and children's positive affect, thus echoing the findings of previous research in samples of biological families: positive parenting practices and children's secure attachment are intrinsically related to children's positive outcomes (e.g., Schiffrin, 2014). This may lead to the conclusion that parents engaged in positive parenting strengthen the relationship with their children, allowing them to feel secure enough to explore the world, and to develop a sense of greater well-being. The fact that this type of mechanism, in the present study, is significant only for the non-adoptive group may perhaps suggest that for adoptive children, it takes more than just having positive parenting practices to gain the required confidence and strength to develop emotional well-being. Moreover, this fact may be highlighted by the results of the preliminary analysis which showed that, although adoptive parents did not differ from non-adoptive parents in negative parenting styles, they presented less emotional warmth and more parenting stress, which may be associated with less consistency of positive parenting practices. As far as insecure attachment is concerned, it was hypothesized that it (particularly anxious/ambivalent) would mediate the association of both parenting styles (particularly emotional warmth) and parenting stress with positive and negative affect in the adoptive group (H2c). The results partially supported this hypothesis, showing that adoptive children's anxious/ambivalent attachment mediated the association between parenting stress and negative affect. In fact, one of the characteristics of the anxious/ambivalent pattern of attachment is the expression of negative emotions (Carvalho, 2007), and this pattern has been closely related to children's negative outcomes (Bowlby, 1969). Moreover, the above-mentioned study by Tharner et al. (2012), despite using a sample of biological young children, showed that parenting stress (particularly related to childrearing) influences socio-emotional problems in insecurely attached children. These results highlight the importance of considering children's insecure attachment, particularly anxious/ambivalent attachment, in combination with other risk factors, such as parenting stress, as a cumulative vulnerability for child development (Tharner et al., 2012).

Finally, it should be noted that the results of the present study appear to suggest that negative outcomes seem to be better explained in the adoptive parents group than in the non-adoptive parents group. These results may be interpreted in light of adoption research that has reported more difficulties in adopted children's emotional development and attachment, compared to their non-adopted counterparts (e.g., Harris-Waller et al., 2016; Santos-Nunes et al., 2016; van den Dries et al., 2009).

4.1. Limitations and future studies

Despite the relevance of the above-mentioned findings, this study has its limitations, requiring that the presented results be taken with caution and should only be applied to families with similar characteristics (socio-demographic and adoption characteristics) to those of the study's sample. The sample size, especially for the group of adoptive parents, should be noted; for the type of analysis used, larger samples are recommendable in order to enable more robust procedures, such as structural equation model analysis (SEM). Additional limitations are related to the asymmetry in the number of intra and intergroup mothers and fathers, which may mask some features due to gender-related differences. Moreover, the exclusive focus on parents' results restricts a more holistic perspective of the phenomenon under study. The cross-sectional nature of the study has only enabled an interpretation of the results within a constrained time-frame and does not provide robust conclusions as would be the case with a longitudinal design. Although the literature emphasizes the importance of children's prior history for the quality of adoption adjustment, in the present study it was only possible to have access to limited information (e.g., age when adopted, length of time of integration in the family) due to restrictions imposed by the collaborating adoption agencies. Future studies should address these limitations. They should involve larger and more homogeneous samples in terms of parent gender, and also explore mediation effects in independent samples of mothers and fathers. The inclusion of different informants and behavioral observations should also be considered, as these procedures would provide a richer and more comprehensive picture of the dimensions and processes under study. The consideration of other variables related to the adoptive children's past (e.g., length of time in birth family, information regarding previous adversity), might be of help in the analysis of the specificities found in the adoptive group (e.g., negative outcomes were better explained in the adoptive group). Longitudinal designs that allow trajectories of change over time and transactional effects of parenting and child outcomes would also be helpful.

Although the EMBU-P, an instrument widely used in research, has proven to be reliable for the study of parenting (e.g., Platt, Williams, & Ginsburg, 2016), in the present study, higher values of reliability coefficients were desirable for control attempts and rejection subscales. However, the Cronbach's alpha values are in line with the limits pointed out by Nunnally and Bernstein (1994) for acceptable reliability (between 0.60 and 0.70). Notwithstanding, some caution is recommended in the interpretation of the results of the present study.

Finally, the literature has revealed a bidirectional relationship between parenting and children's outcomes (e.g., Neece et al., 2012), therefore, despite the important findings evidenced by the proposed model, alternative models should be explored in future studies in order to analyze, for instance, how children's attachment affects parenting styles and stress, and how this relationship is reflected in children's emotional and behavioral well-being.

4.2. Implications for practice and policy

The promotion of emotional well-being is of utmost importance for creating healthy behaviors (Upadhyay & Arya, 2015), and this is particularly relevant in the case of adoptive children who have experienced adversity. Along with the contribution that this study makes to adoption literature (by evidencing the processes that link the quality of adoptive parenting to children's attachment and well-being, as described in the discussion section), the results may have some important implications for clinical settings, pre- and post-adoption services, and adoption policies. The evidence that children's attachment significantly influences the link between parenting and children's emotional well-being highlights the usefulness of direct work with adoptive (or non-adoptive) parents, when children are referred for clinical services due to their misbehavior, sadness, hyperactivity or other externalizing or internalizing problems. The results that pointed to less emotional support of adoptive parents appear to highlight the importance of working towards an increase in consistent emotional warmth, in order to promote the development of more secure attachment, which, in turn, would positively impact children's emotionality, since this link has already been observed in non-adoptive families (Schiffrin, 2014). Furthermore, research has revealed the primordial role of support in regulating negative affect (see Kawabata et al., 2011), which is a relevant issue to deal with in adoptive children, as shown by the present results. Thus, adoption policies should promote and reinforce the development of effective preventive and therapeutic post-adoption services, for children's social care and clinical psychology fields, in addition to the existing pre-adoption services that are geared towards the assessment and preparation of candidates for adoption. In fact, it has become clear

that after a "honeymoon" period (i.e., an initial period of mutual "enchantment" and discovery in the parent-child interaction), parents frequently state that they need help in dealing with adoptive children's difficulties, which are often related to their emotional well-being and insecure attachment (e.g., Garvin et al., 2012). Furthermore, interventions could also be founded on the contributions of positive psychology in order to enhance children's positive traits as protective factors, and also as a way to improve their overall well-being (Upadhyay & Arya, 2015).

5. Conclusions

The impact of parenting dimensions, such as parenting styles and parenting stress in children's development and well-being is of particular relevance in the case of adoption, where parents and children have to develop a relationship that is consistently influenced by their stories of origin and their expectations and beliefs regarding family dynamics. The present study has shown that children's attachment mediates the relationship between parenting (styles and stress) and children's affectivity (positive and negative affect), but differently for adoptive and non-adoptive families: children's negative outcomes appear to be better explained in adoptive families while, on the contrary, children's positive outcomes encounter a higher level of explained variance in the non-adoptive families group. In fact, when compared with non-adoptive parents, the results revealed that adoptive parents provide their children less emotional warmth, and display a higher level of parenting stress, as well as a perception of more difficulties concerning their children's affectivity and attachment. Despite the limitations of the study, these results could contribute to a reflection on prevention and intervention strategies for professionals involved with adoptive families.

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References

Abidin, R. R. (1995). *Parenting stress index – Professional manual.* Odessa, FL: Psychological Assessment Resources.

American Psychological Association (2002). Ethical principles of psychologists and code of conduct. *American Psychologist, 57*, 1060–1073. http://dx.doi.org/10.1037/0003-066X.57.12.1060.

American Psychological Association (2010). 2010 Amendments to the 2002 "Ethical principles of psychologists and code of conduct.". *American Psychologist, 65*, 493. http://dx.doi.org/10.1037/a0020168.

Barchard, K. A. (2003). Ethics in on-line data collection. *Paper presented at the western psychological association annual convention, May 2, Vancouver, BC*.

Barone, L., & Lionetti, F. (2012). Attachment and emotional understanding: A study on late-adopted pre-schoolers and their parents. *Child: Care, Health and Development, 38*(5), 690–696. http://dx.doi.org/10.1111/j.1365-2214.2011.01296.x.

Baumrind, D. (1989). Rearing competent children. In W. Damon (Ed.). *Child development today and tomorrow* (pp. 349–378). San Francisco: Jossey-Bass.

Baumrind, D., Larzelere, R. E., & Owens, E. B. (2010). Effects of preschool parents' power assertive patterns and practices on adolescent development. *Parenting: Science and Practice, 10*(3), 157–201. http://dx.doi.org/10.1080/15295190903290790.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*, 238–246. http://dx.doi.org/10.1037/0033-2909.107.2.238.

Bornstein, M. H. (2006). Parenting science and practice. Series Ed. Vol. Eds. In W. Damon, K. A. Renninger, & I. E. Sigel (Eds.). (6th ed.). *Vol. 4: Child psychology in practice*(pp. 893–949). New York, NY: Wiley.

Bosmans, G., Braet, C., Beyers, W., Van Leeuwen, K., & Van Vlierberghe, L. (2011). Parents' power assertive discipline and internalizing problems in adolescents: The role of attachment. *Parenting: Science and Practice, 11*(1), 34–55. http://dx.doi.org/10.1080/15295192.2011.539507.

Bowlby, J. (1969). *Attachment and loss: Attachment.* New York: Basic Books.

Breinholst, S., Esbjørn, B. H., & Reinholdt-Dunne, M. L. (2015). Effects of attachment and rearing behavior on anxiety in normal developing youth: A mediational study. *Personality and Individual Differences, 81*, 155–161. http://dx.doi.org/10.1016/j.paid.2014.08.022.

Brodzinsky, D. M., Smith, D. W., & Brodzinsky, A. B. (1998). *Children's adjustment to adoption. Developmental and clinical issues.* London: Sage.

Canavarro, M. C., & Pereira, A. I. F. (2007). A avaliação dos estilos parentais educativos na perspectiva dos pais: A versão portuguesa do EMBU-P. *Teoria, Investigação e Prática, 2*, 271–286.

Carré, A., Tessier, R., & Tarabulsy, G. M. (2015). Attachement et adoption: Portrait d'enfants d'Asie. *Enfance, 67*(3), 273–288. http://dx.doi.org/10.4074/S0013754515003031.

Carvalho, M. (2007). *Vinculação, temperamento e processamento da informação: Implicações nas perturbações emocionais e comportamentais no início da adolescência [Attachment, temperament, and information processing: Effects on emotional and behavioural disorders in early adolescence].* Doctoral dissertation Portugal: University of Minho. Retrieved from http://repositorium.sdum.uminho.pt/handle/1822/8410.

Castro, J., Toro, J., Arrindell, W. A., Van der Ende, J., Puig, J., & Costa, S. (1990). Perceived parental rearing style in Spanish adolescents, children and parents: Three new forms of the EMBU. In C. N. Stefanis, C. R. Solsatos, & A. D. Ravavilas (Eds.). *Psychiatry: A world perspective* (pp. 345–349). Amsterdam: Elsevier.

Colvert, E., Rutter, M., Beckett, C., Castle, J., Groothues, C., Hawkins, A., ... Sonuga-Barke, E. S. (2008). Emotional difficulties in early adolescence following severe early deprivation: Findings from the English and Romanian adoptees study. *Development and Psychopathology, 20*(2), 547–567. http://dx.doi.org/10.1017/S0954579408000278.

Cummings, M. E., Davies, P. T., & Campbell, S. B. (2000). *Developmental psychopathology and family process: Theory, research and clinical implications.* New York: Guilford Press.

Davis, M., & Suveg, C. (2014). Focusing on the positive: A review of the role of child positive affect in developmental psychopathology. *Clinical Child and Family Psychology Review, 17*(2), 97–124. http://dx.doi.org/10.1007/s10567-013-0162-y.

Deater-Deckard, K. (1998). Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice, 5*(3), 314–332. http://dx.doi.org/10.1111/j.1468-2850.1998.tb00152.x.

Dhavale, H., Bhagat, V., & Thakkar, P. (2005). A comparative study of behaviour problems between adopted and nonadopted children in India. *Journal of Child and Adolescent Mental Health, 17*(1), 27–30. http://dx.doi.org/10.2989/17280580509486589.

Dozier, M., Lindhiem, O., Lewis, E., Bick, J., Bernard, K., & Peloso, E. (2009). Effects of a foster parent training program on young children's attachment behaviors: Preliminary evidence from a randomized clinical trial. *Child and Adolescent Social Work Journal, 26*(4), 321–332. http://dx.doi.org/10.1007/s10560-009-0165-1.

Ebesutani, C., Okamura, K., Higa-McMillan, C., & Chorpita, B. F. (2011). 'A psychometric analysis of the positive and negative affect schedule for children-parent version in a school sample': Correction to Ebesutani et al. (2011). *Psychological Assessment, 23*(4), 969. http://dx.doi.org/10.1037/a0026420.

Fundação Francisco Manuel dos Santos [Francisco Manuel dos Santos Foundation] (2017). Retrato de Portugal. Retrieved from http://www.pordata.pt/ebooks/PT2017v20170710/index.html#p=1.

Garvin, M. C., Tarullo, A. R., Ryzin, M. V., & Gunnar, M. R. (2012). Postadoption parenting and socioemotional development in postinstitutionalized children. *Development and Psychopathology, 24*(1), 35–48. http://dx.doi.org/10.1017/S0954579411000642.

Glazer, S., & Beehr, T. A. (2005). Consistency of implications of three role stressors across four countries. *Journal of Organizational Behavior, 26*, 467–487. http://dx.doi.org/10.1002/job.326.

Harris-Waller, J., Granger, C., & Gurney-Smith, B. (2016). A comparison of parenting stress and children's internalising, externalising and attachment-related behaviour difficulties in UK adoptive and non-adoptive families. *Adoption and Fostering, 40*(4), 340–351. http://dx.doi.org/10.1177/0308575916667911.

Hawthorne, G., & Elliott, P. (2005). Imputing cross-sectional missing data: Comparison of common techniques. *The Australian and New Zealand Journal of Psychiatry, 39*(7), 583–590.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis.* New York: Guilford Press.

Hodges, J., Steele, M., Hillman, S., Henderson, K., & Kaniuk, J. (2005). Change and continuity in mental representations of attachment after adoption. In D. M. Brodzinsky, & J. Palacios (Eds.). *Psychological issues in adoption: research and practice* (pp. 93–116). Westport, CT: Praeger.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1–55. http://dx.doi.org/10.1080/10705519909540118.

Judge, S. (2003). Determinants of parental stress in families adopting children from Eastern Europe. *Family Relations, 52*, 241–248. http://dx.doi.org/10.1111/j.1741-3729.2003.00241.x.

Kawabata, Y., Alink, L. R., Tseng, W.-L., van Ijzendoorn, M. H., & Crick, N. R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review, 31*, 240–278. http://dx.doi.org/10.1016/j.dr.2011.08.001.

Kirk, H. D. (1964). *Shared fate: A theory of adoption and mental health.* New York: Free

Press of Glencoe.
León, E., Palacios, J., Román, M., Moreno, C., & Peñarrubia, M. G. (2015). Parental stress, family functioning and children's psychological adjustment in adoptive families: A comparative and longitudinal study. *Family Science, 6*, 50–57. http://dx.doi.org/10.1080/19424620.2015.1080991.
Lipscomb, S. T., Leve, L. D., Harold, G. T., Neiderhiser, J. M., Shaw, D. S., Ge, X., & Reiss, D. (2011). Trajectories of parenting and child negative emotionality during infancy and toddlerhood: A longitudinal analysis. *Child Development, 82*, 1661–1675. http://dx.doi.org/10.1111/j.1467-8624.2011.01639.x.
Maccoby, E. E., & Martin, J. A. (1983). In E. M. Hetherington (Ed.). *Handbook of child psychology: Vol. 4. Socialization, personality, and social development*(pp. 1–101). New York: Wiley Series Ed.
Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development, 50*(1–2), 66–104. http://dx.doi.org/10.2307/3333827.
Mainemer, H., Gilman, L. C., & Ames, E. W. (1998). Parenting stress in families adopting children from Romanian orphanages. *Journal of Family Issues, 19*(2), 164–180. http://dx.doi.org/10.1177/019251398019002003.
McGlone, K., Santos, L., Kazama, L., Fong, R., & Mueller, C. (2002). Psychological stress in adoptive parents of special-needs children. *Child Welfare, 81*, 151–171.
Muris, P., Meesters, C., & von Brakel, A. (2003). Assessment of anxious rearing behaviors with a modified version of 'Egna Minnen Beträffande Uppfostran' questionnaire for children. *Journal of Psychopathology and Behavioral Assessment, 25*(4), 229–237. http://dx.doi.org/10.1023/A:1025894928131.
Neece, C. L., Green, S. A., & Baker, B. L. (2012). Parenting stress and child behavior problems: A transactional relationship across time. *American Journal on Intellectual and Developmental Disabilities, 117*(1), 48–66. http://dx.doi.org/10.1352/1944-7558-117.1.48.
Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd edition). New York: McGraw-Hill.
O'Dell, K. E., McCall, R. B., & Groark, C. J. (2015). Supporting families throughout the international special needs adoption process. *Children and Youth Services Review, 59*, 161–170. http://dx.doi.org/10.1016/j.childyouth.2015.11.008.
Palacios, J., & Brodzinsky, D. (2010). Adoption research: Trends, topics and outcomes. *International Journal of Behavioral Development, 34*, 270–284. http://dx.doi.org/10.1177/0165025410362837.
Palacios, J., Román, M., Moreno, C., & León, E. (2009). Family context for emotional recovery in internationally adopted children. *International Social Work, 52*(5), 609–620. http://dx.doi.org/10.1177/0020872809337679.
Palacios, J., & Sanchez-Sandoval, Y. (2005). Beyond adopted/non-adopted comparisons. In D. M. Brodzinsky, & J. Palacios (Eds.). *Psychological issues in adoption: Research and practice* (pp. 117–144). Westport, CT: Greenwood.
Palacios, J., & Sánchez-Sandoval, Y. (2006). Stress in parents of adopted children. *International Journal of Behavioral Development, 30*, 481–487. http://dx.doi.org/10.1177/0165025406071492.
Panfile, T. M., & Laible, D. J. (2012). Attachment security and child's empathy: The mediating role of emotion regulation. *Merrill-Palmer Quarterly, 58*(1), 1–21. http://dx.doi.org/10.1353/mpq.2012.0003.
Pastor, I. (2014, March 14). A adoção internacional: Dados estatísticos e constrangimentos [International adoption: Statistical data and constraints]. *Coleção de formação contínua do Centro de Estudos Judiciários [Training collection of the judiciary studies' center]*. Retrieved from www.cej.mj.pt/cej/recursos/ebooks/familia/Adocao.pdf.
Pesonen, A., Räikkönen, K., Heinonen, K., Komsi, N., Järvenpää, A., & Strandberg, T. (2008). A transactional model of temperamental development: Evidence of a relationship between child temperament and maternal stress over five years. *Social Development, 17*(2), 326–340. http://dx.doi.org/10.1111/j.1467-9507.2007.00427.x.
Platt, R., Williams, S. R., & Ginsburg, G. S. (2016). Stressful life events and child anxiety: Examining parent and child mediators. *Child Psychiatry and Human Development, 47*(1), 23–34. http://dx.doi.org/10.1007/s10578-015-0540-4.
R Core Team (2015). *R: A language and environment for statistical computing.* Vienna, Austria: R Foundation for Statistical Computing. Retrieved from http://www.R-project.org/.
Roberson, K. C. (2006). Attachment and caregiving behavioral systems in intercountry adoption: A literature review. *Children and Youth Services Review, 28*(7), 727–740. http://dx.doi.org/10.1016/j.childyouth.2005.07.008.
Román, M., Palacios, J., Moreno, C., & López, A. (2012). Attachment representations in internationally adopted children. *Attachment & Human Development, 14*(6), 585–600. http://dx.doi.org/10.1080/14616734.2012.727257.
Rosnati, R., Montirosso, R., & Barni, D. (2008). Behavioral and emotional problems among Italian international adoptees and non-adopted children: Father's and mother's reports. *Journal of Family Psychology, 22*(4), 541–549. http://dx.doi.org/10.1037/0893-3200.22.3.541.
Rosnati, R., Ranieri, S., & Barni, D. (2013). Family and social relationships and psychosocial well-being in Italian families with internationally adopted and non-adopted children. *Adoption Quarterly, 16*(1), 1–16. http://dx.doi.org/10.1080/10926755.2012.731030.
Rosseel, Y. (2012). Lavaan: An R Package for structural equation modeling. *Journal of Statistical Software, 48*, 1–36. http://dx.doi.org/10.18637/jss.v048.i02.
Rothbart, M. K., & Bates, J. E. (2006). *Temperament.* Hoboken: John Wiley & Sons.
Rueter, M. A., Keyes, M. A., Iacono, W. G., & McGue, M. (2009). Family interactions in adoptive compared to nonadoptive families. *Journal of Family Psychology, 23*(1), 58–66. http://dx.doi.org/10.1037/a0014091.
Santos, S. V. (2008). Forma reduzida do Parenting Stress Índex (PSI): Estudo preliminar [Parenting Stress Index (PSI) - Short form: Preliminary study]. *XIII Conferência Internacional. Avaliação Formas e Contextos, Braga* , October.
Santos-Nunes, M., Narciso, I., Vieira-Santos, S., & Pereira, C. (2017). Escala de Afeto Positivo e Negativo para Crianças-Pais (PANAS-C-P) - Versão Reduzida [Positive and Negative Affect Schedule-Parent-Child (PANAS-C-P) - Short-Version]. In M. M. Gonçalves, M. R. Simões, & L. S. Almeida (Eds.). *Psicologia clínica e da saúde – Instrumentos de avaliação [Clinical and health psychology – Assessment instruments].* Lisboa: Editora Pactor.
Santos-Nunes, M., Narciso, I., Vieira-Santos, S., & Roberto, M. S. (2016). *Families with adoptive versus adoptive and biological children: Children adjustment, parenting stress and relational family environment.* (Manuscript submitted for publication).
Schiffrin, H. (2014). Positive psychology and attachment: Positive affect as a mediator of developmental outcomes. *Journal of Child and Family Studies, 23*(6), 1062–1072. http://dx.doi.org/10.1007/s10826-013-9763-9.
Sharma, A. R., McGue, M. K., & Benson, P. L. (1996). The emotional and behavioral adjustment of United States adopted adolescents: Part I. An overview. *Children and Youth Services Review, 18*(1–2), 83–100. http://dx.doi.org/10.1016/0190-7409(95)00055-0.
Simões, M. R. (1994). *Investigações no âmbito da aferição nacional do teste das Matrizes Progressivas Coloridas de Raven (M.P.C.R.) [Research for the national validation of Raven's Coloured Progressive Matrices (R. C. P. M.)].* Unpublished PhD DissertationFaculty of Psychology and Educational Sciences, University of Coimbra.
Soares, J., Barbosa-Ducharne, M., Palacios, J., & Pacheco, A. (2017). Adopted children's emotion regulation: The role of parental attitudes and communication about adoption. *Psicothema, 29*(1), 49–54.
Solomon, C. R., & Poirier, M. (2006). Parenting styles and attributions and the behavior of children in the 'no' stage in adoptive and biological families. *Adoption Quarterly, 10*(1), 63–83. http://dx.doi.org/10.1300/J145v10n01_04.
Steele, M., Hodges, J., Kaniuk, J., Steele, H., Hillman, S., & Asquith, K. (2008). Forecasting outcomes in previously maltreated children: The use of the AAI in a longitudinal adoption study. In H. Steele, & M. Steele (Eds.). *Clinical applications of the adult attachment interview* (pp. 427–451). New York, NY: Guilford Press.
Tan, T. X., Camras, L. A., Deng, H., Zhang, M., & Lu, Z. (2012). Family stress, parenting styles, and behavioral adjustment in preschool-age adopted Chinese girls. *Early Child Research Quarterly, 27*(1), 128–136. http://dx.doi.org/10.1016/j.ecresq.2011.04.002.
Tharner, A., Luijk, M. M., van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Jaddoe, V. V., Hofman, A., ... Tiemeier, H. (2012). Infant attachment, parenting stress, and child emotional and behavioral problems at age 3 years. *Parenting: Science and Practice, 12*(4), 261–281. http://dx.doi.org/10.1080/15295192.2012.709150.
Upadhyay, U. T., & Arya, S. (2015). A critique of research studies on application of positive psychology for augmenting children's emotional wellbeing. *Indian Journal of Positive Psychology, 6*(4), 417–421.
van den Dries, L., Juffer, F., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2009). Fostering security? A meta-analysis of attachment in adopted children. *Children and Youth Services Review, 31*(3), 410–421. http://dx.doi.org/10.1016/j.childyouth.2008.09.008.
Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98*, 219–235. http://dx.doi.org/10.1037/0033-2909.98.2.219.
Yngvesson, B. (2010). *Belonging in an adopted world.* Chicago, IL: University of Chicago Press.