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RESEARCH ARTICLE

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Adolescents' attachment, quality of relationships with residential caregivers, and emotion regulation

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Abstract

Introduction: Adolescents in residential care are more likely to report insecure and especially disorganized attachments, which lead to difficulties in emotion regulation and compromise the quality of their interpersonal relationships. In residential care, it is expected that sensitive and responsive caregivers are able to help adolescents regulate their feelings of distress, enabling them to experience a sense of emotional security. The present study sought to analyze the effects of the quality of attachment on emotion regulation and to test the moderating effect of quality of relationship (from adolescents' and caregivers' perspectives) on this association.

Methods: The sample involved 306 adolescents, 12–18 years of age, living in residential care and 70 caregivers.

Results: The findings underscored the importance of the quality of the relationship with residential caregivers on adolescents' emotion regulation competencies over time. The results also showed that the quality of relationship (emotional closeness) as perceived by the caregivers moderated the association between adolescents' attachment avoidance levels and their emotion regulation strategies.

Conclusions: The results are discussed according to attachment theory, and underscore the role the relationship with caregivers plays in the affective reorganization of adolescents living in residential care.

KEYWORDS

attachment, emotion regulation, longitudinal, quality of the relationship, residential care

1 | INTRODUCTION

Residential care placement of children and young people is a relevant phenomenon worldwide, not only because of the high number of institutionalized children and young people (around 8 million; Petrowski et al., 2017; United Nations International Children's Emergency Fund, 2009), but also due to its impact on their development (United Nations International Children's Emergency Fund, 2017). The majority of adolescents living in residential care report a childhood characterized by experiences of abuse and/or neglect, trauma, and disrupted attachment (Quiroga & Hamilton-Giachritsis, 2016). As a result, they are more likely to present physical, developmental, and behavioral problems (Vasileva & Petermann, 2018). In particular, these adolescents may be especially prone to emotion regulation difficulties (Kim & Cicchetti, 2010). Emotion regulation can be generally defined as the process by which individuals influence the occurrence, intensity and expression of emotions to deal with specific goals or in accordance with context (Eisenberg & Morris, 2002; Gross, 1998; R. A. Thompson, 1994). Gratz and Roemer (2004) propose an integrative multidimensional conceptualization of emotion regulation that involves the awareness and understanding of emotions (awareness), the acceptance of emotions, the ability to control impulsive behaviors and the ability to use situationally appropriate emotion regulation strategies (strategies) (Gratz & Roemer, 2004). Thus, this multifaceted conceptualization of emotion regulation involves different dimensions wherein difficulties may occur, namely nonacceptance of emotional responses, difficulties

engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, as well as limited access to emotion regulation and lack of emotional clarity (Gratz & Roemer, 2004).

Research has highlighted that emotion regulation is an important aspect of socioemotional development (Eisenberg et al., 2010), which develops within an individual's social interactions (Calkins & Hill, 2007; R. A. Thompson & Meyer, 2007). Empirical studies have showed that environmental factors such as cohesion, acceptance and caring, as well as emotional stability have great impact on emotional and social adjustment and maturity (Rawat & Gulati, 2019). Thus, an appropriate and emotionally stable social environment contributes to individual differences on emotion regulation. By contrast, in the absence of such conditions the ability to regulate the emotions can be highly compromised (Cicchetti et al., 1991). There is empirical evidence that differences in attachment and emotional/behavioral dynamics in social relationships with significant figures play a relevant role in the development of emotion regulation competencies (Cassidy, 1994; Mikulincer et al., 2003). Accordingly, the present study focused on two types of individual variation, namely attachment and quality of relationship, which have been theorized to explain differences on emotion regulation capacities. Attachment results from the history of interactions with attachment figures and is represented by global, stable, and trait-like interpersonal dispositions (Ainsworth et al., 1978).

Regarding insecure attachment, contemporary views of adolescent and adult attachment conceptualize two dimensions: avoidance and anxiety. Avoidance reflects the difficulty to trust others and the need to maintain behavioral and emotional independence. Anxiety reflects worries about rejection and abandonment (Fraley et al., 2000). Low levels of anxiety and of avoidance are linked to a more secure attachment style. Furthermore, these attachment dimensions are associated with distinct emotion regulation strategies. Whereas more avoidant individuals tend to deny or suppress negative emotions (e.g., Berant et al., 2001), anxious individuals tend to exaggerate appraisals of threat (e.g., Ein-Dor et al., 2011) and show a hyperactivation of distress (Shaver & Mikulincer, 2002). In the present study, the quality of relationship represents the feelings of emotional closeness and intimacy within a specific and current significant relationship (Cook, 2000; La Guardia et al., 2000).

1.1 | Attachment and emotion regulation

According to attachment theory, the attachments established with primary caregivers are relevant for the child's emotional and social development (Bowlby, 1973, 1988). Adolescents living in residential care have to deal with the transition to a new caregiving environment and face new relationships, sometimes more than once. This instability of the caregiving environment and figures, and the exposition to adverse life experiences, predispose adolescents to more disorganized attachment (Van IJzendoorn et al., 2011). In fact, the literature has been consensual demonstrating that adolescents in residential care have a high risk to present insecurity, and in particular disorganized attachment (Lionetti et al., 2015; Muzi & Pace, 2021; Van den Dries et al., 2009). However, when children experience consistent, sensitive, and responsive caregiving from significant figures, they develop positive internal working models of self and others (i.e., a secure attachment style) along with a sense of emotional security. In adolescence, peers are also extremely important figures of support for adolescents (Buhrmester, 1992) with influence on adolescents` development (Meeus et al., 2002) and attachment styles. These personal experiences have been linked to the development of emotion regulation, competencies relevant to stress regulation and adaptation to different situations and contexts (R. Thompson, 2014). Extensive research has found that individual differences in attachment styles may have effects on emotion regulation (e.g., Kiel & Kalomiris, 2015). Thus, securely attached adolescents generally are able to recognize negative feelings and cope with them with the help of others (e.g., Mikulincer et al., 2002). By contrast, unstable and unpredictable interactions and a context perceived as threatening lead to the development of insecure attachments. This sense of instability can contribute to a greater emotional reactivity and difficulties in expressing emotions in insecure attached adolescents (Pietromonaco & Barrett, 2000).

However, research regarding the influence of attachment styles on emotion regulation among adolescents in residential care is still limited. Systematic reviews and meta-analytic studies of this literature have suggested that adolescents in residential care are more likely to present insecure and especially disorganized attachment, which confront them with emotional regulation problems (e.g., Bakermans-Kranenburg et al., 2011; Carr et al., 2018; Lionetti et al., 2015; Vasileva & Petermann). Another common contributor to these problems is the possible lack of a stable environment in residential care institutions, either as a function of staff turnover or by the turnover of the youth themselves from one home to another, which makes it difficult for adolescents to establish emotional ties (Gaskell, 2010). Furthermore, research has pointed out that many of these difficulties are largely due to the inadequacies of early childcare with primary caregivers (McLean, 2003), due to disadvantaged backgrounds (Aber et al., 2000) and/or early life stress (Anda et al., 2008), which makes the caregiving of adolescents in residential facilities a challenge for the professional staff in these units. These conditions can confront adolescents with extreme difficulties in responding to the affective and relational availability or unavailability of the residential caregivers (Poletto & Koller, 2008), circumstances which may also affect the adolescent's emotion regulation competencies. Moreover, a longitudinal study demonstrated that children and adolescents with early experiences of abuse or neglect tend to present poor emotion regulation. Consequently, the difficulties in regulating emotions are associated with more difficulties to be accepted by peers and higher internalizing symptomatology 1 year later (Kim & Cicchetti, 2010).

However, there is a lack of longitudinal studies investigating the development of emotion regulation in adolescents living in residential care and factors associated with it over time.

1.2 | Quality of relationship and emotion regulation

As noted above, research on the quality of relationship and emotion regulation among adolescents in a residential care context is lacking despite the fact that emotion regulation is rarely experienced in a social vacuum (Hofmann, 2014; Zaki & Williams, 2013). Indeed, several authors have emphasized the interpersonal aspects of emotion regulation and the direct or indirect influence of social components on emotion regulation (Beckes & Coan, 2011; Coan & Maresh, 2013; Hofmann, 2014; Zaki & Williams, 2013). Furthermore, relationship quality is intersubjective and nonindependent, and represents distinct perceptions due to different life experiences, as well as to the social or/and biological maturity of each member of the dyad (Bogenschneider & Pallock, 2008). This implies that a child and a caregiver may appraise their relationship quality differently in the face of shared interpersonal experiences. Thus, considering only one interactant's perceptions does not provide a comprehensive assessment of the relationship's quality (Laursen & Collins, 2009).

Accordingly, adolescents' perceptions of adults' availability to care for them and to establish meaningful relationships are considered to promote their academic, social, and emotional adjustment outcomes (Langhout et al., 2004). In a residential care context, the institutional staff often work as significant attachment figures, promoting safety, emotional support, and creating an environment of acceptance (e.g., Fergus & Zimmerman, 2005; Mota et al., 2016). According to attachment theory, adolescents who perceive a responsive and genuine emotional support in residential care, tend to develop more favorable patterns of psychosocial adaptation (Bowlby, 1969). The possibility for adolescents to build stable satisfying relationships (characterized by support, intimacy, nurturance, admiration, but also some necessary criticism and conflict) is fundamental; caregivers often function as a security source and support the anguishes and fears of children and adolescents (Zegers, 2007). In fact, the quality of the relationship with these new figures of affection can constitute an opportunity for initiating processes of revision of the internal working models (self and others) and develop a higher capacity to deal with adverse situations (Mota & Matos, 2010). As a result, these adolescents receive the caregiving responses from adults that are necessary to develop and regulate adequately their emotions (Blair et al., 2008). Despite little is known about the importance of the quality of relationship of adolescents and their caregivers in residential care context, it is consensual the relevance of the quality of the relationship established with significant figures on adolescents' adaptive development. Empirical studies demonstrated that the quality of the relationship is related to lower levels of emotional and behavioral problems (e.g., Assouline & Attar-Schwartz, 2020; Erol et al., 2010), deviant behavior/behavioral problems (Erol et al., 2010; Mota et al., 2016), more positive adjustment to residential care (Marsh & Evans, 2009) and higher well-being (Oruzar et al., 2019). The quality of the relationship not only has direct effects on development, it also may serve as a protective factor. Previous research has indicated that quality of the relationship with caregivers does indeed moderate the effects of risk factors on adolescent's development (Costa et al., 2020). Moos and Lemke (1996) advanced a model regarding residential care facilities wherein social climate was related to a variety of adolescent outcomes, including their emotion regulation efforts. A positive social climate was characterized by supportive relationships between staff and adolescent residents, a safe, and structured environment, and low levels of repression and anger. Other investigators have also found a positive social climate to be associated with adolescents' active coping strategies (Van der Helm et al., 2011), higher levels of client and staff satisfaction about the treatment program (Schultz, 1992), and well-being of adolescents living in residential care (e.g., Attar-Schwartz, 2013; Lanctôt et al., 2016; Pinchover & Attar-Schwartz, 2014). By contrast, a negative social climate has been related to adolescents' social and behavioral problems, and to their victimization by their peers in residential care (Pinchover & Attar-Schwartz, 2014; Sekol, 2016). Thus, when caregivers have a general perception that there is a social climate in which adolescents seek and trust in them, they tend to be closer and more supportive of these adolescents, which contributes to the latters' development of emotion regulation competencies. The moderating role of quality of the relationship needs to be investigated, because sensitivity, consistency, and affection may help children develop more adaptively in case of high contextual risk.

To address these gaps, the main aim of this study was to analyze, using a longitudinal design, the effects of the quality of attachment on emotion regulation and to test the moderating effect of quality of relationship (from adolescents' and caregivers' perspectives) on this association.

1.3 | The present study

In summary, although the empirical literature has reported that adolescents in residential care are more likely to present social and emotional difficulties, no prior study has tested an integrative model that considers both the adolescents' attachment styles and the quality of their relationships with residential caregivers on the adolescents' emotion regulation

competencies. Moreover, to our knowledge, no study within a residential care context has tested this effect using a longitudinal design that conjointly considered the perceptions of both adolescent residents and their institutional caregivers in the construction of their relationship. To address this gap, the present study sought to analyze the effects of the quality of attachment on emotional regulation and to test the moderating effect of quality of relationship (from adolescents' and caregivers' perspectives) on this association. The following hypotheses were advanced:

H1: Attachment (time 1) will be associated with emotion regulation (time 2). That is, higher levels of attachment avoidance and anxiety among adolescent residents will be associated with their lower levels of emotional awareness and their more limited access to strategies for emotion regulation (e.g., Berant et al., 2001).

H2a: Quality of relationship (at time 1) from adolescents' and caregivers' perspectives separately will be associated with higher capacity of emotion regulation (at time 2). More specifically, quality of relationship characterized by emotional closeness will be associated with higher levels of emotional awareness and greater access to strategies for emotion regulation (Bradley et al., 2006).

H2b: Quality of relationship characterized by relational tension (at time 1), separately assessed by adolescents' and caregivers' perspectives, will be associated with adolescents' lower levels of emotional awareness and more limited access to strategies for emotion regulation (at time 2) (Pietromonaco & Barrett, 2000).

H3: The relation between adolescents' attachment styles (at time 1) and emotion regulation (at time 2) will be moderated by the quality of relationship from caregivers' perspectives. More specifically, when the level of adolescents' avoidance is high and caregivers report high emotional closeness with their group of adolescents at time 1, adolescents acknowledge higher levels of emotional awareness and emotion regulation strategies 6 months later (time 2). By contrast, when the adolescents' avoidance is high and caregivers report low emotional closeness with the group of adolescents at time 1, adolescents report lower levels of emotional awareness and more limited access to strategies for emotion regulation (time 2).

2 | METHOD

2.1 | Participants

The sample comprised 306 adolescents at time 1 (26.5% males and 73.5% females) aged 12–18 years ($M = 15.47$, $SD = 1.73$, living in 19 different residential care institutions in Portugal under the protection measures. The educational levels ranged from fourth to high-level grade. One hundred ninety-nine (65.1%) adolescents were from 4th to 9th grade, while 80 (26.1%) were in secondary school (10th to 12th grade), 1 (0.3%) was in college and 16 (4.9%) were in vocational courses of education and formation. The length of placement in the current institution ranges from less than 1 month to 192 months ($M = 32.29$ months, $SD = 39.36$), with no information from nine adolescents. The total number of children and adolescents ranged from 8 to 60 per residential care institution. The ratio ranged from 2 to 12 adolescents per caregiver ($M = 4.31$, $SD = 1.99$).

At time 2, the sample involved 154 adolescents (21.4% males and 78.6% females) aged 12–18 years ($M = 15.19$, $SD = 1.738$), 152 adolescents (49.67%) had missing data at time 2. One hundred and fifty-two result of lost due to attrition (50.33%), namely due to moving to another institution or returning to family. The result of Little's MCAR test was $p = .018$. Thus, several *t*-tests and chi-square tests were conducted to assess associations between characteristics of time 1 respondents and participation status in time 2. Attrition was modeled using binary logistic regression (Nicholson et al., 2017) tested with demographic variables. The results indicated that adolescents who participated only in the first time (T1) differed from those who also participated in the second time (T2) on some variables, namely age and gender. Adolescents who dropped out of the study at T2 were more likely to be older $t\ (304) = 2.83$, $p = .005$ and male $\chi^2(1) = 4.05$, $p = .044$, suggesting a pattern of missing data consistent with the assumption of missing at random (MAR).

The sample also involved 70 caregivers from the residential staff (14.3% males and 85.7% females) aged ranged between 24 and 63 years ($M = 37.96$, $SD = 7.76$). The educational levels ranged between graduation and the master degree ($M = 13.39$ years of schooling; $SD = 0.95$). Caregivers only participated in time 1 data gathering.

2.2 | Measures

A socio-demographic questionnaire was used to collect personal data about adolescents and caregivers. The data included information regarding age, gender, time living in residential care, as well as year of schooling currently attending. The questionnaire completed by caregivers also included items related to educational level, profession, time spent in institution, years of experience, employment contract and difficulties in the work.

The *Difficulties in Emotion Regulation Scale* (DERS; Gratz & Roemer, 2004; Portuguese version from Coutinho et al., 2010) is a self-report measure which assesses emotion regulation problems and involves various dimensions on which

difficulties can occur. We used only two dimensions: Strategies (limited access to strategies for emotion regulation; eight items; e.g., "When I'm down, I think I'm going feel this way for a long time") and Awareness (lack of emotional awareness; six items; e.g., "I pay attention to how I feel"). These 14 items were rated on a 5-point Likert scale, ranging from 1 (*never*) to 5 (*always*) with higher scores indicating more difficulties in emotion regulation. The following Cronbach's alphas were observed at each time point: T1—Strategies ($\alpha = .85$), awareness ($\alpha = .80$); T2—Strategies ($\alpha = .87$), awareness ($\alpha = .77$). The standard steps of measurement invariance, namely, configural invariance, factor loading invariance, intercepts invariance, and factor covariance invariance were tested for each measure (Van de Schoot et al., 2012). Scale scores were imputed following the final test of measurement invariance. Findings showed that the instrument also exhibited longitudinal invariance on all relevant indicators: baseline model: $\chi^2/df = 1.953$, comparative fit index (CFI) = .87, root mean square error of approximation (RMSEA) = .05 (C.I = .049–.063); factor loading invariance: $\chi^2/df = 1.882$, CFI = .87, RMSEA = .05 (C.I = .047–.061); factors intercepts invariance: $\chi^2/df = 1.849$, CFI = .87, RMSEA = .05 (C.I = .046–.059) and factors covariance invariance: $\chi^2/df = 1.844$, CFI = .87, RMSEA = .05 (CI = .046–.059).

The *Experiences in Close Relationships*: Relationship Structures Questionnaire (ECR-RS; Fraley et al., 2011; Portuguese version from Moreira et al., 2015) is a nine item, selfreport instrument designed to measure the conscious perception of attachment related anxiety (three items; e.g., "I'm afraid that this person may abandon me") and avoidance (six items; e.g., "I don't feel comfortable to vent or open me with this person") in close relationships. Adolescents were instructed to respond to the questions by considering their relationship with their best friend. Items are rated on a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Obtained Cronbach's alphas were as follows: Anxiety ($\alpha = .84$), avoidance ($\alpha = .77$). Findings showed that the instrument also exhibited longitudinal invariance on all relevant indicators: baseline model: $\chi^2/df = 2.225$, CFI = .94, RMSEA = .05 (C.I = .050–.077); factor loading invariance: $\chi^2/df = 2.179$, CFI = .93, RMSEA = .06 (C.I = .049–.075); factors intercepts invariance: $\chi^2/df = 2.037$, CFI = .94, RMSEA = .05 (C.I = .045–.071) and factors covariance invariance: $\chi^2/df = 2.019$, CFI = .94, RMSEA = .05 (C.I = .045–.071).

The *Network Relationships Inventory* (NRI; Furman & Buhrmester, 1985) is a self-report measure designed to assess the individual's perceptions about the quality of the relationship with different figures. In the present study, we adapted it to the adolescent-caregiver relationship, and used the following dimensions: support (three items; e.g., "How much do you turn to this person for support with personal problems"), intimacy (three items; e.g., "How much do you talk about everything with this person"), nurturance (three items; e.g., "How much this person helps you with things you can't do by yourself"), admiration (three items; e.g., " How much does this person treat you like you're admired and respected"), criticism (three items; e.g., "How much does this person point out your faults or put you down") and conflict (three items; e.g., "How much do you and this person get upset with or mad at each other"). Each adolescent was asked to choose a significant caregiver in the residential care. The scale contains 18 items, answered on a five-point Likert scale, ranging from 1 (*little or none*) to 5 (*always*). Both adolescents and caregivers responded to the same questionnaire, although there were differences in the instructions. Adolescents were asked to choose an answer in relation to a significant caregiver (not identified) in the residential care context. Using confirmatory factor analysis (CFA), we identified a structure composed of two factors: Emotional Closeness (resulted from merging support, intimacy, nurturance and admiration; $\alpha = .92$), and relational tension (resulted from merging criticism and conflict; $\alpha = .85$). This instrument again exhibited longitudinal invariance on all relevant indicators: baseline model: $\chi^2/df = 2.257$, CFI = .83, RMSEA = .06 (C.I = .060–.069); factor loading invariance: $\chi^2/df = 2.167$, CFI = .83, RMSEA = .06 (C.I = .057–.067); factors intercepts invariance: $\chi^2/df = 2.135$, CFI = .83, RMSEA = .06 (C.I = .056–.066) and factors covariance invariance: $\chi^2/df = 2.173$, CFI = .83, RMSEA = .06 (CI = .057–.067).

Caregivers answered the questionnaire taking into account the group of adolescents (and not each adolescent) and their perception of young people about themselves (e.g., "Adolescents share their secrets and private feelings with me"). This procedure resulted in less heterogeneity in the caregivers' perception about the quality of their relationships with adolescents; however, it was the most appropriate methodological option for meeting all the ethical requirements associated with this study. It was found the same structure: Emotional Closeness ($\alpha = .90$), and Relational Tension ($\alpha = .83$), $\chi^2/df = 1.465$, CFI = .90, RMSEA = .08 (C.I = .055–.107).

2.3 | Procedure

After receiving approval for this study from the authors' institutional Ethics Committee, the Social Services Institute, and the residential care directors, institutions on an official list were randomly contacted to participate in this study. After being informed about the objectives of the study, 19 of these institutions agreed to participate and provided explicit written informed consent. All ethical procedures were guaranteed, including the confidentiality and anonymity of information as well as the voluntary nature of participation in the study. Adolescents institutionalized with severe cognitive deficits were excluded from study participation. All participants provided written informed consent. Adolescents` participation the protocol consent procedure was also signed by the directors of each institution. The

general objectives of the study were presented, and standard instructions were given by the researcher regarding the completion of self-report questionnaires. No financial compensation was involved. The order of the presented questionnaires was randomized to minimize order bias in the results. Adolescents' questionnaires were administrated in group sessions within the institutional settings. The time spent completing the entire questionnaire was approximately 30 min. This study involved two waves of data collection, 6 months apart. Data collection was carried out between October 2017 and May 2019, due to the lengthy nature of the authorizations granted, particularly in the case of residential care institutions. Caregivers' questionnaires were individually completed (depending on the availability of the caregivers), during the adolescent's administration or returned by mail to the researcher.

2.4 | Data analysis

Analyses were conducted using IBM SPSS Statistics 24 and with IBM SPSS Amos v.24. Missing values and outliers were inspected. Under the assumption of MAR, models' estimation was performed using full-information maximum likelihood. This avoided the exclusion of participants with missing data and allowed a more precise models' estimation. We removed 3 adolescents from the study, due to present standardized residuals out of −3 and 3. As reported earlier, the factorial structure of all measures was tested through CFA. Data were examined with path analysis. The model was evaluated using the chi-square test, CFI and RMSEA. We assumed that CFI values between .90 and .95 would be indicative of an acceptable model fit, and values above .95 indicative of a good fit; RMSEA values less than .08 were assumed to indicate acceptable model fit, and those below .05 indicative of a good model fit (Brown, 2015; Schweizer, 2010).

Given that adolescents were clustered in institutions, we tested if emotion regulation was nested within a higher level (residential care). Thus, an intraclass correlation was performed (strategies T1: ICC = .06; DEFF = 1.08; awareness T1: ICC = .05; DEFF = 1.11). These results showed that adolescents' emotion regulation scores were similar across institutions, indicating that adolescents' emotion regulation was independent of the care setting in which they resided. Thus, path analysis was preferred over multilevel data-analytic options.

3 | RESULTS

3.1 | Descriptive analyses

Means, standard deviations, and intercorrelations of study variables are presented in Table 1. Only one correlation was significant (adolescent's perception of emotional closeness associated with the caregiver's perception of relational tension), but no so high as to indicate a multicollinearity problem.

TABLE 1 Means, standard deviations and correlations between quality of relationship, attachment and emotion regulation.

	1	2	3	4	5	6	7	8	9	10
1-Adolescents' EC	-									
2-Adolescents' RT	.091	-								
3-Caregivers' EC	−.069	.091	-							
4-Caregiver' RT	−.186**	−.052	.380**	-						
5-Anxiety	.036	.087	.101	.025	-					
6-Avoidance	−.171**	.262**	.107	.005	−.087	-				
7-Awareness T1	−.249**	.021	.088	.036	−.059	.247**	-			
8-Strategies T1	.119*	.117*	.104	.037	.200**	−.054	−.252**	-		
9-Awareness T2	−.256**	.097	.068	.034	−.075	.284**	.740**	−.044	-	
10-Strategies T2	.107	-.016	.006	.034	.178**	−.101	−.105	.629**	−.228**	-
Mean	3.88	1.66	3.33	1.64	4.38	2.46	2.29	3.11	2.18	3.18
SD	0.91	0.83	0.62	0.53	2.06	1.22	0.82	0.87	0.78	0.89

Abbreviations: EC, emotional closeness; ER, emotion regulation; RT, relational tension.

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

3.2 | Effect of adolescent's attachment on emotion regulation

Path coefficients were calculated by a series of multiple regression analyses based on the hypothesized model. In the model 1 test, the longitudinal effect of emotion regulation was first controlled, followed by the entry of the two attachment dimensions (avoidance and anxiety), and including gender and age as covariates. This first model identified was a saturated model, so model fit information could not be obtained. The results nonetheless revealed that adolescents' emotion regulation at time 1 significantly predicted their emotion regulation at time 2 (6 months later). This model also showed that attachment style had an impact on emotion regulation. More specifically, attachment avoidance, but not attachment anxiety, demonstrated a weak but significant association with awareness at time 2. The results revealed that awareness (lack of emotional awareness) at time 1 predicted awareness (lack of emotional awareness) at time 2 (i.e., the awareness was stable over time). Adolescents' scores on limited access to emotion regulation strategies at time 1 was also stable and predicted both adolescents' strategies (limited access to strategies) and awareness scores (i.e., lack of emotional awareness) at time 2. Regarding the attachment dimensions, only avoidance predicted emotion regulation at time 2. The results also showed that avoidance had a significant and positive effect on lack of emotional awareness across time. In this model, we added the covariates variables (gender and age). The model showed that gender has a significant effect on emotional strategies, with female gender positively predicting the lack of strategies. The model used is presented in Figure 1 (model 1).

3.3 | The moderating effect of adolescents' attachment between quality of relationship with caregivers and emotion regulation

We then examined whether the quality of relationship with residential caregivers (at time 1, measured with two dimensions: emotional closeness and relational tension) was associated with capacity of emotion regulation (at time 2), and if it moderated the effect of attachment on emotional regulation. The model was tested twice: one time including adolescents' perception of quality of relationship (model 2), and a second time including caregivers' perception of quality of relationship (model 3). In both models, gender and age were included as covariates. In the model 2, the results revealed that awareness (lack of emotional awareness) at time 1 predicted awareness (lack of emotional awareness) at time 2. Adolescents' scores on limited access to emotion regulation strategies at time 1 was also stable and predicted both adolescents' strategies (limited access to strategies) and awareness scores (i.e., lack of emotional awareness) at time 2. Adolescents' limited access to emotion regulation strategies at time 1 was also stable and predicted both adolescents' strategies and awareness at time 2. However, the stability effects of emotional regulation during time is low. No significant effects were found for age, gender, adolescents' attachment and quality of the relationship from their perspective. The model 2 presented a good fit: $\chi^2/df = 2.860$, CFI = .962, RMSEA = .078 (C.I = .052–.105). Regarding model 3, the results showed the same effects of model 2. However, the model 3 also revealed a negative effect of caregivers' perception of emotional closeness on adolescents' limit acess to strategies. It is important to note that this effect is also low. Regarding the model 3, the fit indexes were the follow: $\chi^2/df = 9.189$, CFI = .785,

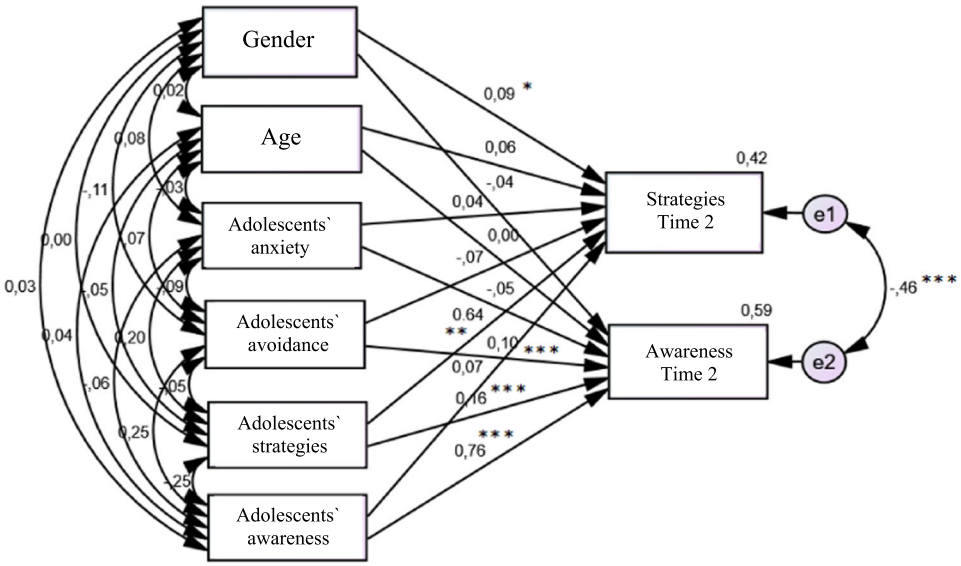

FIGURE 1 Model 1 of adolescents' attachment (time 1) on emotion regulation (time 2) and covariates (adolescents' age and sex). *$p < .05$; **$p < .01$; ***$p < .001$; the correlations among predictors range from .00 to −.25. [Color figure can be viewed at wileyonlinelibrary.com]

RMSEA = .164 (C.I = .144–.185). Only significant dimensions identified in previously tested models were used in the model 4. To simplify the presentation of findings and to reflect about significant paths, the final longitudinal model (model 4) is presented in Figure 2. In this model 4, we added the covariates variables, however in the model the results did not show significant effects of gender and age. Regarding the stability of emotion regulation, we found the same results described on previous models. We also tested the moderating effect of quality of relationship from caregivers' perspective (time 1) between adolescent's attachment and emotion regulation (time 2). The model 4 presented a good fit: $\chi^2/df = 2.023$, CFI = .979, RMSEA = .058 (C.I = .023–.091). According to the results, quality relationship, only in the emotional closeness dimension, moderates the relationship between avoidant attachment (time 1) and adolescents' emotion regulation (time 2). The analysis showed that quality of relationship from the caregivers' perspective characterized by emotional closeness moderated the relationship between avoidance and adolescents' strategies (time 2).

The interaction effects are graphically represented in Figure 2. When the adolescents' avoidance is high and caregivers report low emotional closeness with the group of adolescents they are responsible for, adolescents report lower levels of emotion regulation strategies 6 months later. By contrast, when the level of adolescents' avoidance is high and caregivers report high emotional closeness with their group of adolescent charges, adolescents acknowledge higher levels of emotion regulation strategies 6 months later. Thus, avoidance attachment (time 1) was associated with less emotion regulation strategies (time 2) among adolescents in residential care when caregivers perceived less emotional closeness to them; on the other hand, time 1 avoidance was associated with higher levels of (time 2) emotion regulation strategies among adolescents when caregivers perceive greater emotional closeness with them, indicating that the quality of relationship perceived by caregivers significantly affected the adolescents' emotion regulation 6 months later. The model variables accounted for 58% of the variance of adolescents' awareness and 43% for adolescents' strategies of emotion regulation (Figure 3; Table 2).

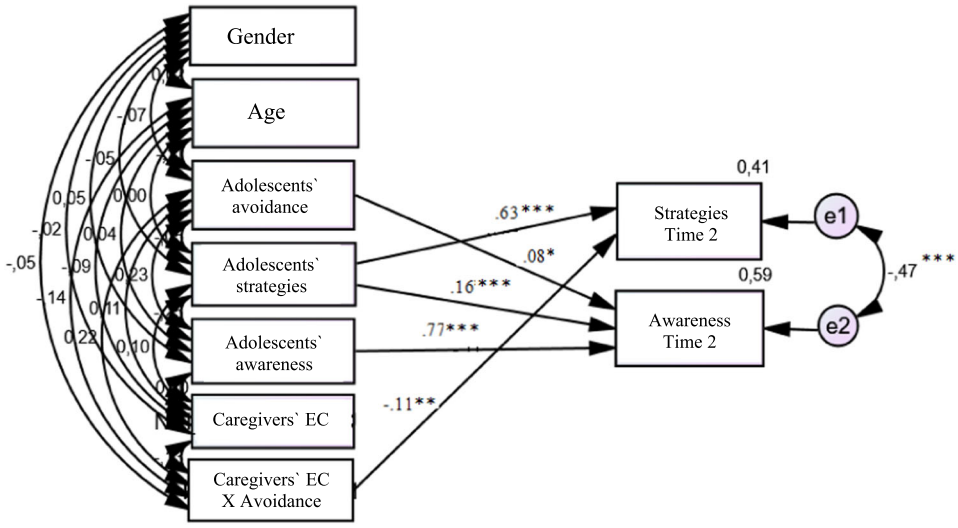

FIGURE 2 Model 4 moderating effect of emotional closeness from caregivers' perspective (time 1) between adolescent's attachment and emotion regulation (time 2) with covariate (adolescents' age and sex). *$p < .05$; **$p < .01$; ***$p < .001$; EC, emotional closeness; ER, emotion regulation; RT, relational tension; the correlations among predictors range from −.00 to .23. [Color figure can be viewed at wileyonlinelibrary.com]

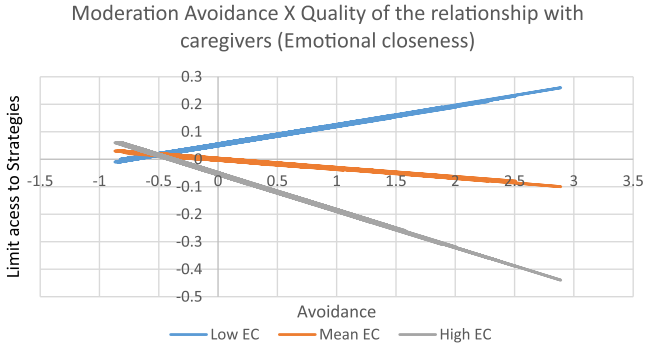

FIGURE 3 The moderating effect of caregivers' perception of quality of the relationship on the association between adolescents' attachment and emotion regulation. EC, emotional closeness. [Color figure can be viewed at wileyonlinelibrary.com]

TABLE 2 Baseline model and covariates and model of moderation effect of caregivers' perception of the quality of the relationship on the association between adolescents' attachment and emotion regulation.

	Model 2, $N = 306$ adolescents				Model 3, $N = 70$ caregivers			
	Strategies (T2)		Awareness (T2)		Strategies (T2)		Awareness (T2)	
T1 variables	β	*p*	β	*p*	β	*p*	B	*p*
Gender	.06	.12	−.01	.67	.08	.06	−.04	.30
Age	.06	.17	−.00	.92	.04	.27	.00	.94
Adolescents' anxiety	.05	.26	−.05	.15	.04	.32	−.04	.24
Adolescents' avoidance	−.05	.25	.09	.02	−.03	.41	.09	.01
Strategies	.64	.00	.16	.00	.64	.00	.16	.00
Awareness	.07	.10	.74	.00	.08	.07	.76	.00
Adolescents' EC	.01	.75	−.06	.12	-	-	-	-
Adolescents' RT	−.07	.13	.03	.38	-	-	-	-
Adolescents' EC × anxiety	−.02	.63	.03	.40	-	-	-	-
Adolescents' EC × avoidance	.02	.51	−.01	.66	-	-	-	-
Adolescents' RT × anxiety	−.00	.87	.01	.69	-	-	-	-
Adolescents' RT × avoidance	.04	.38	−.04	.34	-	-	-	-
Caregivers' EC	-	-	-	-	−.09	.05	−.02	.52
Caregivers' RT	-	-	-	-	.05	.28	.00	.98
Caregivers'EC × anxiety	-	-	-	-	−.00	.91	−.01	.70
Caregivers' EC × avoidance	-	-	-	-	−.10	.01	.01	.78
Caregivers' RT × anxiety	-	-	-	-	−.01	.68	−.00	.88
Caregivers' RT × avoidance	-	-	-	-	−.01	.82	−.01	.93
Caregivers' EC	-	-	-	-	−.071	.112	−.028	.463
Adolescents' Avoidance × Caregiver' EC	-	-	-	-	−.115	.011	.011	.768
Variance	.43		.59		.43		.58	
R^2	.43		.59		.43		.58	
Model fit	$\chi^2/df = 2.860$, CFI = .962, RMSEA = .780 (CI = .052 to .105).				$\chi^2/df = 9.189$, CFI = .785, RMSEA = .164 (CI = .144 to .185).			

Abbreviation: CFI, comparative fit index; ER, emotion regulation; EC, emotional closeness; RMSEA, root mean square error of approximation; RT, relational tension.

4 | DISCUSSION

Due to their developmental history, adolescents in residential care are likely to experience emotion regulation difficulties (lack of emotional awareness, limited access to strategies) and may thus need close and secure relationships with significant caregivers to integrate previous adverse relational experiences (e.g., maltreatment, neglect, sexual abuse, emotional abuse). This study aimed to test the effect of attachment on emotion regulation of adolescents in residential care. It also tested the moderating effect of quality of relationship with caregivers on the previous association. We found that the attachment predicted the emotion regulation of adolescents in the context of residential care 6 months later. However, the results showed that only avoidance revealed a significant effect on emotion regulation. The strength of this association is low. These results are in line with previous findings, which have linked attachment avoidance with dysfunctional emotion regulation strategies (Mikulincer et a., 2003; Muzi & Pace, 2021). Individuals with higher levels of avoidance tend to inhibit the expression of emotions, deny or suppress emotional distress and tend to distance themselves from the source of distress to cope with difficulties (i.e., deactivating strategies) (Kobak & Sceery, 1988; Wei et al., 2005). The results of the present study also showed no significant effect of anxiety on emotion regulation. Despite several studies showing an association between insecure attachment dimensions and emotion regulation difficulties (Malik et al., 2015), some findings suggest the presence of a different style of interrelationships among anxiety, avoidance, and emotion regulation capacities (e.g., Brenning & Braet, 2012; Mikulincer et al., 2003; Tatnell et al., 2013).

Finally, results demonstrated that gender (female) predicted positively the lack of strategies. The empirical findings regarding gender differences in emotion regulation are not consistent. In the present study, gender predicted positively the lack of strategies, with adolescent females reporting more difficulties in accessing effective strategies of emotion regulation. The items representing this dimension are related to difficulties in finding ways to feel better during moments of stress and thus experiencing depressed affect. In this respect, our findings are in line with those of a meta-analysis which found that women reporting greater use of all emotion coping strategies than men (Tamres et al., 2002), including rumination and suppression.

This study also aimed to test the effect the quality of relationship (at time 1) from adolescents' and caregivers' perspectives separately on capacity of emotion regulation (at time 2). Our findings also underscored the importance of the quality of the relationship with residential caregivers on adolescents' emotion regulation competencies over time. When caregivers' perceived quality of their relationships with adolescents was characterized by emotional closeness, adolescents evidenced better strategies of emotion regulation 6 months later. Thus, a relationship marked by an attitude of support, attention and closeness from the caregivers enhances the development of the adolescents' emotion regulation. According to attachment theory, these results suggest that emotional closeness with caregivers may serve as a protective factor with an influence on adolescent's socioemotional development (e.g., Bowlby, 1969; Fergus & Zimmerman, 2005). In this sense, the quality of adolescents' relationships with their residential caregivers promotes the development of the adolescents' emotional resources and constructive strategies for resolving internal and external conflicts.

According our hypothesis the quality of relationship characterized by relational tension (at time 1), separately assessed by adolescents' and caregivers' perspectives, would be associated with adolescents' lower levels of emotional awareness and more limited access to strategies for emotion regulation (at time 2). Despite the relevance of relational tension for the quality of the relationship, no significant effect was found between relational tension and adolescents' emotion regulation over time in this study. According to previous research higher levels of conflict was associated with emotion regulation difficulties and negative emotions, especially anger, frustration, and distrust (Greer & Jehn, 2007; Griffith et al., 2014). However, the impact of conflict in the relationships on emotion regulation abilities may depend on the levels and the source of the conflict (Folkman, 1984). Note that the mean of relational tension was low ($M = 1.66$) in a Likert scale ranged between 1 and 5. It is also important to note that these two different aspects of the quality of relationship are not mutually exclusive or at opposite ends of a continuum. In fact, it is possible an adolescent to become involved in relationships that are low in both emotional closeness and relational tension, high in both indices of quality, or high in one index and low in the other (Brady et al., 2016).

Our final hypothesis was that the relation between adolescents' attachment styles (at time 1) and emotion regulation (at time 2) would be moderated by the quality of relationship from caregivers' perspectives. Thus, our results revealed a more specific interaction between adolescents' attachment dimensions and quality of relationships with their caregivers, with highly avoidant adolescents reporting improved emotion regulation strategies over time when their caregivers perceived higher emotional closeness with them. Of note, whereas the quality of the caregiving relationship as perceived by adolescents was not significant in previous association, caregivers' perceptions of closeness did favorably influence the development of emotion regulation among avoidant adolescents. This result is in line with the concerns of some researchers, who have been directing greater attention on the influence of caregiver's perceptions on the child and adolescent's development. According to the reciprocal approach, caregiver's perceptions and caregiving affect child development and in turn child behavior influences caregiving practices. Rosenblum et al. (2002) advanced a model which reflects the interdependent nature of social interactions, in which caregiver's perceptions are linked to emotions experienced in the social relationship to the child/adolescent and consequent influence child emotional development. Thus, this process involves caregiver-child/adolescent experience within the relationship, which influence the caregivers' interpretation and response according child behavior, and ultimately, the quality of children's socioemotional development (Bowlby, 1982). Furthermore, it is important to emphasize our finding that this moderation effect was mainly significant among avoidant adolescents. However, the moderation effect is low. This result is a bit surprising given that these adolescents tend to not experience such significant buffering effects of quality of relationship, simply because it is difficult they allow themselves to establish relationships which are as close and supportive in nature (McElhaney et al., 2006). On the other hand, according to the findings of other authors (e.g., Larose et al., 2005), it also seems plausible that adolescents with avoidant attachment downplay the importance of their relationships with caregivers (e.g., due to past experiences of rejection and/or neglect) (Larose et al., 2005) and/or show falsely positive affect as a strategy to avoid negative affect, or as a means to self-protection and relationship maintenance (Milan et al., 2009). Riley (2011) noted that emotional relationships with caregivers were associated with emotion regulation, because these relationships tend to facilitate the expression and regulation of emotions. The results revealed that only the quality of relationship by caregiver's perception had a moderator effect on adolescent's emotion regulation. These findings are in line with studies in related fields, which found that positive perceptions and expectations of therapist have an effect on adolescents' outcomes, namely higher academic achievement and less anxiety in youth (Cheung et al., 2012; Dill et al., 2012).

Finally, the results emphasize the relevance of both trait-like dimension of attachment and the more state-like dimension of security provide by quality of relationship with significant figures to consider the development and maintenance of emotion regulation (Diamond & Hicks, 2005).

5 | LIMITATIONS AND CONCLUSIONS

Despite this study allowed the reflection on the importance of quality of the relationship of adolescents in residential care with caregivers, the findings should be interpreted with caution. First, the present study includes the exclusive use of self-report measures, which are susceptible to response and social desirability biases. Due to ethical issues the caregivers' perception about quality of relationship was related to a group of adolescents under their care, which likely lowered heterogeneity of this predictor variable. Also, due to ethical reasons and the emotional resonance of assessing attachment to parents in a self-report questionnaire in this vulnerable population, the adolescents' perception of attachment was accessed considering the relationship with their best friend. However, we acknowledge important differences between attachment to parents and to peers. Also, due to ethical concerns it was not possible to analyze, from a dyadic point of view, the quality of the relationship adolescent-caregiver. Thus, each adolescent responding by reference to a preferred caregiver, without identifying him/her, and caregivers responding taking into account the group of young people. Also, the strength of the associations, although significant, is very low, the results should be interpreted with caution. Finally, the majority of the participants were female, which may limit the generalizability of the results.

However, the present study makes significant contributions to the research literature on caregivers' influence in an important developmental aspect of adolescents in residential care, namely emotion regulation. This study is multi-informant (includes information from adolescents' and caregivers' perspectives), which exclude the reductionist view about the relevance of other important figures to these adolescents, such as professional caregivers. Despite the difficulties of following adolescents in residential care over the time due to turnover, this study adopted a longitudinal design, which allowed establishing possible causal relationships. Finally, the present study highlights the relevance of training caregivers with an adequate profile to establish supportive and emotional relationships with adolescents.

In future studies, it would be relevant to design an intervention to train caregivers with an adequate profile to establish supportive and close relationships with adolescents and to test its impact on the promotion of adlescents' emotion regulation competencies. Additionally, future lines of research should consider employing a mixed-method approach, considering also the preliminary control of other variables such as the type of maltreatment and cognitive verbal abilities (Pace et al., 2021). Using interviews to assess attachment organization and the emotion regulation strategies can add meaningful knowledge to understand the relational dynamics and how adolescents and caregivers make sense of important transactions and behaviors. Also, the states of mind of caregivers regarding attachment are important to investigate (Mota & Matos, 2016; Zegers, 2008), as they are strongly related with how educators can work as secure base figures for the adolescents. Future research that will replicate the study, could support or not the findings related to the effect of attachment and quality of relationship on emotional regulation, indeed, the low effect size found in this study request future investigation. The sample of caregivers is limited, future studies could include more caregivers. Finally, it would also be relevant to analyze the impact of quality of the relationship with caregivers in other adolescents' variables, such as well-being.

5.1 | Implications for practice

Concerning practical implications, this study contributes to the reflection of importance of nurturing bonds between caregivers and adolescents in residential care. Furthermore, the results highlighted the relevance of the quality of the relationship with caregivers as essential in providing the kind of emotional environment that is conducive to positive adaptation and emotional development. Thus, it is extremely relevant, through formal training and supervision, training caregivers to establish supportive and emotional relationships (e.g., sensitivity, consistency, affection) with adolescents. This kind of atmosphere is crucial to provide adolescents a sense of nurturance and a secure environment to help adolescents to develop adaptative emotion regulation strategies. Finally, this study indirectly called the attention to the need of a greater investment in the professionals' training and the need to avoid turnover and discontinued relations with caregivers.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ETHICS STATEMENT

The study was approved by the Ethical Committee of the Faculty of Psychology and Education Sciences at the University of Porto.

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