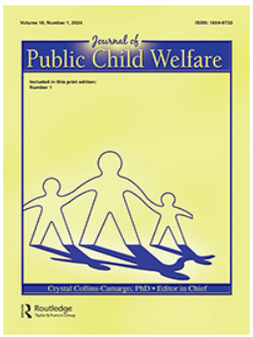

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# What's on your mind? The effects of an attachment-based intervention on residential youth workers' reflexive functioning

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**ABSTRACT**

This study investigated the impact of an attachment-based intervention on care workers' reflexive functioning (RF), analyzing 212 professionals in a randomized control trial. The study employed a multi-group latent difference score model to investigate changes in professionals' certainty (i.e., hypermentalizing) while controlling for attachment-related anxiety and avoidance at T0. Furthermore, it examined whether these changes predicted the professionals' ability to foster children's autonomy. Results showed reduced hypermentalizing in the experimental group over time, correlating with higher levels of children's autonomous/secure support. The role of RF processes in enhancing professionals' capabilities to support the autonomy of children will be discussed.

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Reflexive functioning; secure base; residential care; children/youth; autonomous/secure support

> It is not always, but sometimes my pain awakes with their pain. And I am there listening to them, trying to understand which part of the story is mine and theirs. And I am always in this movement, almost as seeing myself and them from the outside (Care Worker, 2019)

Children[1] living in Residential Care (RC) have often experienced abusive, neglectful, and relationship discontinuities that interfere with their ability to develop trustful relationships (Domon-Archambault et al., 2020; Steinkopf, Nordanger, Halvorsen, Stige, & Milde, 2021). There has also been great concern about the impact of institutional environmental conditions on children's development (Brännström, Vinnerljung, Forsman, & Almquist, 2017; van IJzendoorn et al., 2020). Unstable care arrangements, inadequate child-to-caregiver ratios, high staff turnover, depriving stimulating exchanges, and lack of adequate training seem to result in a suboptimal environment in RC settings

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(Colton & Roberts, 2007; van IJzendoorn et al., 2020; Whittaker et al., 2016). Research has also been stressing the significant variability in what concerns the quality of care, resulting from the complex interplay between organizational dimensions and professionals' and personal/relational characteristics (Garcia Quiroga & Hamilton-Giachritsis, 2017; Kind, Bürgin, Fegert, & Schmid, 2020; Leipoldt, Harder, Kayed, Grietens, & Rimehaug, 2019). One of the most important factors accounting for this variability in children's developmental outcomes concerns care workers' ability to facilitate the development of emotional bonds (Costa, Mota, & Matos, 2022; Harder, Knorth, & Kalverboer, 2012; Steels & Simpson, 2017; Törrönen, 2021; Zegers, Schuengel, Van Ijzendoorn, & Janssens, 2008). For many children, these professionals may work as "second chance secure base figures" (Graham, 2005, p. 1), providing emotional conditions for healing and for developing secure mental representations of self and others, known as internal working models (Bowlby, 1969/1982/1982). Research has stressed that their responsiveness and sensitivity to children's emotional needs are good predictors of secure attachment (Garcia Quiroga & Hamilton-Giachritsis, 2016). Nevertheless, inducing a sense of security and trust is a complex and challenging task, mainly when working with children who exhibit emotion regulation impairment, pain-based behaviors, and mistrust in relational involvement (Anglin, 2004; Domon-Archambault et al., 2020; Steinkopf, Nordanger, Halvorsen, Stige, & Milde, 2021). This challenge is fundamental during critical developmental periods, such as the ones lived during adolescence (Morais et al., 2022; Moretti, Pasalich, & O'Donnell, 2018).

## Reflexive functioning and sensitive caregiving in RC

Responsive and sensitive care are core dimensions of secure caregiving (Bowlby, 1988; Sherman, Rice, & Cassidy, 2015) and seem to depend on care workers' ability to attend to internal experiences of self and others and to frame thoughts and emotions underlying observable behaviors (Pascuzzo, Cyr, Joly, Rollin, & Cyr-Desautels, 2021). In this context, sensitive care consists of the ability of professional caregivers to engage, be open, and interested in adolescents' emotions and thoughts and be able to interpret behavior considering adolescents' attachment needs (Bowlby, 1969/1982/1982; Golding, 2003; Moretti, Pasalich, & O'Donnell, 2018; Taylor, 2012). This relational capacity to attend to and disentangle one's emotional scripts and those of others is intrinsically associated with reflexive functioning (RF) or mentalization (Domon-Archambault et al., 2020; Fonagy & Target, 1997). RF is "the mental process by which an individual implicitly and explicitly interprets the actions of himself and others as meaningful based on intentional mental states." (Bateman & Fonagy, 2004, p. 21). The recognition of opacity, curiosity, and interest in the inner world of the child are central features of RF (Fonagy

et al., 2016) and can be essential for preventing automatic responses and allowing professionals to gain space-time opportunities for developing empathic responses (Bateman & Fonagy, 2004; Domon-Archambault et al., 2020). Additionally, the "caregiver's ability to communicate an understanding of the child's intentional stance" (Fonagy & Target, 1997, p. 679) can inspire a sense of security for improving self-organization and emotional regulation processes (Fonagy & Target, 1997; Fonagy, Gergely, Jurist, & Target, 2018; Kelly, Slade, & Grienenberger, 2005).

RF has been considered a dynamic construct, context, and relational dependent (Luyten, Campbell, Allison, & Fonagy, 2020), and therefore imposes key challenges for assessment, namely in what concerns capturing its multidimensionality (Müller et al., 2021; Woźniak-Prus, Gambin, Cudo, & Sharp, 2022). Though it is less well studied, societal circumstances and occurrences also impact RF. Families experiencing social disadvantage, injustice, and inequality are believed to encounter more significant difficulties in their mentalization processes (Bennett, Regan, Dunsmore, King, & Westrupp, 2023; Borelli, St John, Cho, & Suchman, 2016; Campbell & Allison, 2022).

## Mentalization-based interventions

RF has been explored in parenting child research as intrinsically associated with parental attachment. Although the complex, non-overlapping, and relation-specific nature of these constructs, insecure attachment, involving internalized negative representations of self and others (Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998), has been associated with impoverished and minimal RF skills (Barreto & Matos, 2018; Fonagy & Target, 1997; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005).

Attachment and reflexive function are interrelated phenomena in adulthood with bidirectional associations (Fonagy & Bateman, 2016; Huang, Fonagy, Feigenbaum, Montague, & Nolte, 2020). Over the last two decades, research on parental mentalization has shown that RF exerts both direct and indirect influences on infant attachment security, and higher levels of RF foster mentalizing in children (e.g., for a review Zeegers, Colonnesi, Stams, & Meins, 2017). Also, secure attachment is thought to nourish parental RF abilities (Luyten, Campbell, Allison, & Fonagy, 2020). Previous studies on attachment have explored the links between the insecure-related dimension of attachment and parental mentalization impairment using adult attachment interviews (AAI) narratives (e.g., Arnott & Meins, 2007; Slade, Grienenberger, Bernbach, Levy, & Locker, 2005). In general, these results have inspired a significant number of interventions developed for enhancing parental sensitivity and RF abilities as a means for breaking the intergenerational cycle of disorganization and its further implications, namely with families that have

faced distressful and traumatic experiences (Byrne et al., 2018; Granqvist et al., 2017; Steele & Steele, 2017).

In what concerns intervention effectiveness, studies have shown promising but also conflictual results (Barlow, Sleed, & Midgley, 2020; Byrne, Murphy, & Connon, 2020; Letourneau et al., 2015; Lo & Wong, 2022; Midgley, Sprecher, & Sleed, 2021). The main reason could be attributed to measures of variability across studies and the scarce use of robust scientific inquiry, such as RCTs, in most evaluation designs (Lo & Wong, 2022). Additionally, certain studies revealed no enhancement in self-reported reflexive functioning measures, even though other treatment effects were observed (Byrne, Murphy, & Connon, 2020; Fonagy et al., 2016; Ordway et al., 2014). Additionally, with few exceptions, most mentalization-based training programs that aim to improve sensitivity and reflexive abilities under the scope of attachment-based or other relational frameworks, such as trauma-informed care, were mainly centered on parent-child relationships (Lo & Wong, 2022; Midgley, Sprecher, & Sleed, 2021). In this sense, while professional training has been linked to positive outcomes in RC, the impact of relational abilities remains largely unexplored (Santos, Miguel, Do Rosário Pinheiro, & Rijo, 2023 for a review). Despite the limited number of interventions targeting relational factors conducted with foster and residential care workers, either directly or indirectly addressing RF (Adkins, Reisz, Hasdemir, & Fonagy, 2022; Golding, 2003; Moretti, O'Donnell, & Kelly, 2020), and the scarcity of data on intervention effectiveness (Domon-Archambault et al., 2020), the significance of these interventions is grounded in well-established and evidence-based knowledge (Byrne, Murphy, & Connon, 2020; Steele & Steele, 2017; Zeegers, Colonnesi, Stams, & Meins, 2017). The links between attachment, RF, and developmental trajectories in children who have experienced trauma seem to be a "fertile ground" for implementing interventions in children's residential care settings (Allen, Lemma, & Fonagy, 2012; Fonagy & Luyten, 2009). Studies conducted with interventions developed with hard-to-reach families (maltreatment parents or at risk of maltreatment) show positive effects both on parents and children's outcomes, namely in what concerns the quality of attachment, less harsh discipline, children's self-regulating abilities and fewer behavioral and emotional problems (for a review, van der Asdonk et al., 2020). Furthermore, care workers' mentalizing stance may even be more relevant for children who have experienced trauma since helping children deal with emotional distress requires seeing beyond challenging behaviors and embracing emotional suffering (Ensink, Bégin, Normandin, & Fonagy, 2017). Besides being intrinsically associated with sensitivity and the ability to be responsive to children's needs, carers' RF stance could be particularly important for creating a secure and healthy environment for improving children's RF development and encouraging emotion regulation and autonomy (Jacobsen, Ha, & Sharp, 2015; Luyten, Campbell, Allison, & Fonagy, 2020; Taylor, 2012). RF seems to

be at greater risk of developing impairment in children in RC, as other dimensions such as emotional regulation, empathic concern, secure internal working models, or cognitive development (Allen, Lemma, & Fonagy, 2012; Jacobsen, Ha, & Sharp, 2015; Lionetti, Pastore, & Barone, 2015; Muzi & Pace, 2022; Steinkopf, Nordanger, Stige, & Milde, 2020; van IJzendoorn et al. 2020).

RF is not a static ability, being a developmental construct permeable to changes through life experiences and psychological intervention (Allen, Fonagy, & Bateman, 2008; Luyten, Campbell, Allison, & Fonagy, 2020; Montgomery-Graham, 2016; Staines, Golding, & Selwyn, 2019). In this sense, it could be targeted as a core dimension of relational development for professionals who work with trauma and hard-to-reach children and adults (Dozier, Zeanah, & Bernard, 2013; Jacobsen, Ha, & Sharp, 2015). Working in high-risk and stressful contexts could impose additional challenges for mentalization, considering that children's challenging behaviors and emotional suffering could trigger carers' defensive responses and activate their attachment-related memories (Carvalho, Mota, Santos, Costa, & Matos, 2022b) and, therefore, compromise mentalization (Allen, Fonagy, & Bateman, 2008; Bateman & Fonagy, 2004; Evans, 2018). Although individual relational characteristics, inspired by internal working models of self and others, may interfere with projecting own attachment needs, self-awareness, and RF processes (Carvalho, Mota, Santos, Costa, & Matos, 2022b; Lionetti, Pastore, & Barone, 2015; Sochos & Aljasas, 2021), the development of a purposeful, informed attachment and trauma theoretical approach may be required, namely for improving professionals' self-knowledge to work as secure base figures (Graham, 2005). Pascuzzo, Cyr, Joly, Rollin, and Cyr-Desautels (2021) have found that in this RC context, carers' reflective functioning moderates the association between carers' attachment and youth internalizing and externalizing problems. It is expected that interventions targeting professionals' capacity and willingness to engage in mentalization, whether directly or indirectly, particularly in fostering curiosity toward youths' mental states (Allen, Fonagy, & Bateman, 2008), have the potential to enhance professionals' secure caregiving behaviors (Domon-Archambault et al., 2020; Fonagy, Gergely, Jurist, & Target, 2018; Jacobsen, Ha, & Sharp, 2015).

More specifically, considering the close connection between attachment, mentalization, and sensitivity, it is anticipated that training focusing on RF abilities will enhance the quality of care and promote secure base behaviors among care workers (Byrne, Murphy, & Connon, 2020; Domon-Archambault et al., 2020) This becomes especially crucial during adolescence, as attachment during this period is more fluid and significantly influenced by the quality of care (see Moretti, Pasalich, & O'Donnell, 2018 for a review). Following the attachment framework, the provision of sensitive care is critical in fostering a sense of emotional safety and trust, allowing the child to explore the world and gradually attain autonomy (Ainsworth & Bowlby, 1991; Bowlby, 1973; van

IJzendoorn & Bakermans-Kranenburg, 2019). Empirical studies concerning secure caregiving in parent-child dyads and adult relationships research have consistently shown the association between secure caregiving patterns and support for exploratory behaviors (Ainsworth, Blehar, Waters, & Wall, 1978; Crittenden, 1994; Feeney & Collins, 2001). Providing a secure base for inspiring the "pleasures of exploration" (Schofield & Beek, 2005) is also particularly important for children in RC for them to develop autonomy and engage in independent life projects in the future (Kwon & Yang, 2020; NISS, 2021). In this sense, mentalization-based processes in professionals working in RC settings could be associated with the provision of secure base behaviors, namely, considering autonomy granting. Autonomy, a core theme of youth well-being in RC, is mainly involved in developmental challenges during adolescence (Cameron-Mathiassen, Leiper, Simpson, & McDermott, 2022). It is also expected that intervention targeting attachment-based behaviors and mentalization processes could enhance RF abilities, namely the availability to be curious about children's thoughts and emotions underlying observable behaviors. Ultimately, this study aims to enhance our understanding of relational processes that may compromise the quality of care in RC settings. By shedding light on these dynamics, the research seeks to inform the development of therapeutic care strategies, thereby mitigating the potential adverse effects of institutionalization (Carvalho, Mota, Santos, Costa, & Matos, 2022b; van IJzendoorn et al., 2020). This holds particular significance in jurisdictions like Portugal, where the public child welfare system heavily relies on RC responses. Portugal has one of the highest percentages of children in alternative care residing in RC among European countries (Eurochild, 2021). Most recent data shows that 84.9% of children in alternative care in Portugal lived in nontherapeutic RC responses in 2022 (NISS, 2021).

## Current study

Considering the added knowledge that reflexive functioning could have on explaining carers' secure base behaviors, the main aim of this study is to examine the effects of an attachment-based intervention (CareME program) on professionals' reflective functioning abilities. Given the established association between attachment security and RF, we have accounted for the impact of attachment-related anxiety and avoidance. These dimensions reveal distinct strategies of insecure attachment, with anxiety manifesting as a heightened fear of abandonment and an increased need for external validation, while avoidance is linked to an aversion to intimacy and an excessive inclination toward self-reliance (Brennan, Clark, & Shaver, 1998; Wei, Russell, Mallinckrodt, & Vogel, 2007). More specifically, taking into consideration the previously established correlation between the RF certainty dimension and key psychological elements such as genuine interest and curiosity in oneself and others, empathic processes, and

infant attachment – considered crucial in the context of RC this study aims to investigate the effects of the intervention on RF and subsequently on care workers secure base representations, namely considering autonomous/secure support practices. We anticipated that intervention would significantly reduce caregivers' hypermentalizing and that a higher decrease in caregivers' certainty about their mental states would relate to improvements in autonomous/secure support practices. The CareMe intervention is expected to significantly reduce levels of hypermentalization processes, consequently leading to an increase in the granting of autonomy.

## Method

### *Participants*

Participants were 212 care workers (165 women; M age = 40.99 years, SD = 11.05) at the baseline assessment (T0). Care workers were recruited from 21 RC institutions in the Metropolitan Area of Porto, Portugal. On average, there were 10.10 (SD = 4.08) participating care workers per RC institution. This sample was recruited within the scope of a broader experimental research project to evaluate the effectiveness of an attachment-based intervention program to promote care workers' reflexive functioning. Ten residential care units were randomly allocated to the intervention group (n (care workers) = 112) and 11 to the control group (n(care workers) = 100). Descriptive statistics for care workers in the intervention and control groups are presented in Table 1. Most of the participants in the experimental (81%) and control (74%) groups were women. Between the two groups, there were similar proportions of participants in the primary and lower secondary (ISCED level 2 or below), secondary (ISCED levels 3 or 4), and tertiary (ISCED level 5 or above) levels of education.[2] No significant differences were found between the two groups' average age and years of experience in the current RC institution.

**Table 1.** Demographics by control and experimental group.

| | | Control Group ($n$ = 100) | | Experimental Group ($n$ = 112) | | |
|---|---|---|---|---|---|---|
| | | $n$ (%) | $M$ ($SD$) | $n$ (%) | $M$ ($SD$) | |
| Gender | *Female* | 74 (74%) | — | 91 (81%) | — | $\chi^2(1) = 1.22$ |
| | *Male* | 26 (26%) | — | 21 (19%) | — | |
| Education level (ISCED) | *Level 2 or bellow* | 16 (16%) | — | 17 (15%) | — | $\chi^2(2) = 0.12$ |
| | *Level 3 or 4* | 31 (31%) | — | 33 (30%) | — | |
| | *Lever 5 or above* | 53 (53%) | — | 62 (55%) | — | |
| Age (years) | | | 39.65 (10.22) | | 42.18 (11.66) | $t(209.03) = 1.68$ |
| Years of experience | | | 8.73 (8.64) | | 9.62 (9.62) | $t(203.00) = 0.70$ |

*Note*. n = sample size; M = Mean; SD = Standard Deviation; ISCED = International StandardClassification of Education.

We use data obtained at three assessment points, namely at the beginning (T0), interim (T1), and end (T2) of the intervention. T1 took place 8 months after T0, after 3 intervention sessions, while T2 was conducted 5 months after T1, when all 10 intervention sessions were completed. This moment will be further analyzed in future studies. For the experimental group, there was an attrition of 24% at T1 and 34% at T2, whereas, for the control group, the attrition was 28% at T1 and 6% at T2. The attrition rates from T0 to T1 could be due to high carers turnover (Colton & Roberts, 2007) enhanced also by the COVID-19 pandemic. In the experimental group, for instance, one institution dropout resulted in the loss of 12 care workers. Attrition at T1 and T2 was mostly because some care workers did not continue their collaboration with the RC institution or refused to continue participating due to the extraordinary work demands associated with the COVID-19 outbreak. The relation between intervention condition and attrition at T2 was significant, $\chi 2(1, N = 212) = 23.39$, $p < .001$. Participants in the experimental group were more likely to drop out of the study at T2 than participants in the control group.

Overall, there was 18% of missing data. Missing data followed a monotone pattern, as was mainly due to attrition. Results from Little's MCAR tests (Little, 1988) indicated that the observed pattern of missing data was not consistent with the assumption of Missing Completely at Random (MCAR), $\chi 2(85) = 118.73$, $p = .009$. In addition, we determined through linear multiple regression the extent to which the amount of missing data was related to demographic (e.g., intervention condition, participant's sex, and years of experience) or the study variables (i.e., care workers' certainty, attachment-related anxiety and avoidance, and autonomy/secure support) measured at T0. The amount of missing data was significantly predicted by the intervention condition to which participants were assigned to (i.e., experimental vs. control group), $b = -2.80$, $p = .037$, 95% CI [−5.23, −0.16]. In addition, assuming an educative professional role (professionals responsible for supporting adolescents in their daily tasks) at RC institution and not technical (professionals who monitor the implementation of promotion and protection measures, such as social workers and psychologists) ($b = 5.76$, $p < .001$, 95% CI [2.92, 8.60]) and the scores of attachment-related avoidance at T0 ($b = 1.41$, $p = .042$, 95% CI [.05, 2.78]) were also significant predictors of participants' missing data throughout the study. Little and Rubin (2002) proposed that data can be considered to be Missing at Random (MAR) if missingness is related to measured variables but not to values of unmeasured variables. Hence, given that some variables in the dataset significantly predicted the amount of data loss, we assumed the data were MAR and employed appropriate missing data procedures to carry out data analysis.

### Measures

The Reflexive Functioning Questionnaire (RFQ) by Fonagy et al. (2016) is currently one of the most used self-report measures for assessing RF processes (Fonagy et al., 2016). RFQ is an 8-item two-dimensional scale comprising reflexive functioning uncertainty and certainty scales. Extreme high values on both dimensions intend to capture RF impairment, hypomentalization, and hypermentalization, respectively (Fonagy et al., 2016). Examples of hypomentalization include extreme concordance with items such as "Strong feelings often cloud my thinking" and hypermentalization, extreme discordance with items such as "I do not always know why I do what I." Hypomentalization concerns an inability to recognize complex models of one's and/or others' minds. In contrast, hypermentalizing is the generation of mentalistic representations of actions of one's mind and others, usually reflected in detailed accounts with little or no relationship to testable reality (Fonagy et al., 2016). Certainty regarding others' states of mind can be associated with rigidity processes and difficulties in disentangling one's narratives and expectations (Sharp & Vanwoerden, 2015). Showing a genuine interest in a child's mental state is a core dimension of parents' RF, and these constructs seem to be more closely associated with certainty RF dimensions (Fonagy et al., 2016).

During this study, greater focus will be given to the RF certainty scale, due to both methodological and theoretical criteria. As it will be further discussed considering the most recent publications on psychometric properties of the scale (Woźniak-Prus, Gambin, Cudo, & Sharp, 2022) multicollinearity was found, possibly due to the RFQ coding method. Also, sensitive caregiving in stressful contexts could be particularly undermined by high certainty interpretation levels considering children's behaviors, resulting in this sense of hyper-mentalization processes. The certainty subscale from the Reflective Functioning Questionnaire (RFQ, Fonagy et al., 2016) was used to evaluate care workers' certainty about their own mental states (i.e., hypermentalizing). Certainty is a 6-item subscale (e.g., "I don't always know why I do what I do" and "If I feel insecure I can behave in ways that put others' backs up") that captures an individual's tendency for hypermentalizing. Higher scores represent higher levels of certainty. Items were rated using a 7-point scale ranging from 1 ("Strongly disagree") to 7 ("Strongly agree") (see Fonagy et al., 2016 for scoring details). The Cronbach's alpha was .85, .82, and .85 at T0, T1, and T2, respectively.

Residential youth workers reported their attachment orientation at the baseline assessment (T0) using the Experiences in Close Relationship Scale – Revised (ERC-R, Fraley, Heffernan, Brumbaugh, & Vicary, 2011; Moreira, Martins, Gouveia, & Canavarro, 2015). This questionnaire includes two subscales that evaluate individuals' attachment-related anxiety (e.g., "I worry that this person won't care about me as much as I care about him or her") and

avoidance (e.g., "I find it easy to depend on this person" - item with reversed score) toward their romantic relationships. Higher scores represent higher levels of anxiety and avoidance, respectively. Items were rated on a 7-point Likert-type scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The Cronbach's alpha coefficient was .78 and .81 for the care workers' scores on the items measuring attachment-related anxiety and avoidance, respectively.

Residential youth workers' autonomous/secure support was evaluated using four items from the Group care worker Intervention Checklist (GICL, Bastiaanssen et al., 2012). These items assess how often care workers adopted (1 = "not used" to 3 = "widely used") distinct behaviors to manage and regulate behaviors positively (e.g., "Acting strict," "Setting boundaries," "Structuring behavior," "Increasing the ability to cope for oneself"). Carers should respond to these items by selecting a specific relationship with a child they felt particularly challenged during the last year. Nearly half of the participating care workers reported their autonomous/secure support to the same child at T1 (52%) and T2 (43%). Care workers' ratings had Cronbach's alpha of .68, .75, and .55, respectively, at T0, T1, and T2. Higher scores represent higher levels of autonomous/secure support.

### *Intervention program description*

CareME is a group attachment-based intervention program developed to improve professional caregivers' relational and mental abilities in RC settings. The intervention program was planned to integrate 12 group sessions (90 minutes each), implemented fortnightly for six months, and facilitated by two psychologists and two expert researchers on the attachment framework (all team members were clinical psychologists, and 3 have completed PhDs). The program integrates seven moduli: (i) adolescents' "pain-based behaviors" (Anglin, 2004) and attachment theoretical lens, (ii) adolescence and main developmental challenges; (iii) setting rules and limits; (iv) trust & and secure base (figures and environment), (v) professionals' stories of attachment & caregiving (vi) personal and structural characteristics that prevent a secure caregiving environment and (vii) professional impairment and strategies promoting healthy secure base provision.

A crucial dimension of the intervention concerns the improvement of mentalization stance, the ability to reflect upon one's own practices and environment, and personal conditions that prevent reflexive functioning. Inducing mentalization stance was a therapeutic and developmental strategy implemented throughout the project. CareMe's innovative practices result from the integrative nature of an attachment-based framework that elects sensitive and responsive practices and caregivers' mentalization processes as a core intervention principle for helping children deal with the intra- and

interpersonal impact of trauma. If, as has been previously described, there has been an important domain of research and intervention with parents and ultimately with foster parents, less has been developed in RC settings, namely considering such an important period of intervention as adolescence care (Adkins, Reisz, Hasdemir, & Fonagy, 2022; Golding, 2003; Moretti, Pasalich, & O'Donnell, 2018; Taylor, 2012).

The intervention was programmed to be conducted in person in the Faculty of Psychology and Education Sciences, University of Porto facilities. Nevertheless, significant changes were introduced to what was initially programmed. The program periodicity, duration, and number of sessions (10 sessions) were changed due to unpredicted challenges introduced by the first wave of the pandemic (March 2020). A total of 10 sessions were implemented. The first three sessions (February/March 2020) were conducted fortnightly in person as planned. Then, there was an interruption of 7 months due to the abrupt changes introduced by the pandemic. The program restarted in October 2020 online, weekly (7 sessions), ending in December 2020. The interruption period resulted from the implications of lockdown measures on RC organization and the need to respond to the most pressing needs regarding management (e.g., prevent youth and staff contamination, ensure continued responses to other healthcare and psychological intervention needs, ensure communication between youth and most significant ones as family/other relatives/friends, and ensure conditions for distance education). Professionals attended online sessions either during their work shifts or from home, depending on their working schedule.

To evaluate implementation fidelity, specifically adherence (Carroll et al., 2007), facilitators recorded their main impressions of each session and assessed whether the predefined objectives for each module were achieved. Additionally, CareME facilitators and researchers maintained periodic discussions regarding the project intervention plan (aims, themes and strategies) and the implementation of the attachment framework and the mentalization perspective. Also, participant responsiveness (Carroll et al., 2007) was assessed using anonymous in-session evaluations and focus groups. Suggestions during in-session evaluations were integrated throughout the process. Some examples include single case discussions, clarification on the definition and implication of attachment, and caregiving concepts to daily practices. These aspects were included in the final draft of the manual. Sessions were supervised by two expert researchers on psychological intervention implementation.

### *Procedure*

This research project was approved by the Ethical Committee of the authors' institution and by the institution's care directors. All the professionals responsible for technical decisions in the RC facilities, namely the technical directors,

were invited to a presentation meeting. In this session, we ensure that no institution underwent a previous intervention similar to CareME. After the presentation session and the necessary approvals and informed consent, 21 institutions agreed to participate. Randomized allocation was conducted using the covariate adaptive randomization-minimization method (Taves, 1974). The general objectives of the study were presented in each administration, and standardized instructions regarding the questionnaires were given. The control group didn't have any additional intervention assigned. As in the experimental group, each control group participant was assessed at 3 different time points (T0 - baseline; T1 - after 3 sessions with the experimental group; and T2 - end of intervention). Participation was voluntary and anonymous, and no financial compensation was involved.

## Data analyses

The analytical plan comprised three main steps. First, we used composite mean scores to inspect the descriptive statistics for the study's main variables: care workers' attachment-related anxiety and avoidance, certainty about their mental states, and autonomous/secure support. Second, we evaluated the measures' factor structure through Confirmatory Factor Analysis (CFA) and tested for their Measurement Invariance (MI) across time and intervention conditions (i.e., experimental vs. control group). We provide details on these analyses in supplemental material. Finally, we used Structural Equation Modeling (SEM) to test our hypotheses. We examined a multi-group latent difference score model using the data from the two groups, intervention and control. This model evaluated the intervention's effects on care workers' reflective functioning while accounting for the care worker's initial attachment-related anxiety and avoidance and examined the link between the amount of changes in the reflective functioning and care worker's autonomy support. The model was specified using observed mean scores of attachment-related anxiety and avoidance, certainty about their mental states, and autonomy/secure support as manifest variables. We employed full-information maximum likelihood estimation to avoid excluding participants with missing data and achieve more precise model estimation. Model fit was examined using the chi-square goodness-of-fit statistic, the root means square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the standardized root mean square residual (SRMR). Values lower than .06 for RMSEA, greater than .95 for CFI and TLI, and lower than .08 for SRMR indicate good model fit (Hu & Bentler, 1999). Competing models' comparisons were performed using the likelihood-ratio test. All analyses were conducted in R (R Core Team, 2020), using the lavaan (Rosseel, 2012), and the semTools packages (Jorgensen, Pornprasertmanit, Schoemann, & Rosseel, 2021).

## Results

### *Descriptive statistics*

Table 2 included the observed variables' descriptive sample statistics and zero-order correlations. Care workers reported low to moderate average levels of attachment-related anxiety and avoidance, moderate certainty, and moderate to high average rates of autonomous/secure support across all the assessment points. No significant differences were found between the control and experimental groups on their average levels of attachment-related anxiety and avoidance, certainty, and autonomous/secure support at the baseline assessment.

For both the control and experimental groups, correlations in Table 2 suggested moderate to high rank-order stability in care workers' certainty and positive control across time. There was a moderate negative association between attachment-related anxiety and care workers' certainty about others and their own mental states. The negative correlation between attachment-related anxiety and autonomous/secure support was particularly evident in the experimental group. The associations between certainty and autonomous/secure support were not significant, both in the control and experimental groups.

**Table 2.** Means, standard deviations, and correlations for the observed variables.

| | *M (SD)* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Variable | *Control* | *Experimental* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Anxiety (T0) | 2.15 (1.17) | 2.10 (1.13) | — | 0.27** | −0.28** | −0.23* | −0.21 | −0.33** | −0.24 | −0.08 |
| 2. Avoidance (T0) | 1.95 (0.84) | 2.02 (0.89) | 0.16 | — | −0.19 | −0.17 | −0.18 | −0.18 | −0.17 | −0.21 |
| 3. Certainty (T0) | 1.66 (0.81) | 1.57 (0.89) | −0.34** | −0.18 | — | 0.06 | 0.65** | 0.15 | 0.48** | −0.06 |
| 4. Positive Control (T0) | 2.62 (0.35) | 2.68 (0.35) | −0.12 | −0.08 | 0.11 | — | 0.15 | 0.50** | 0.03 | 0.52** |
| 5. Certainty (T1) | 1.67 (0.69) | 1.48 (0.83) | −0.25* | −0.24* | 0.62** | 0.02 | — | 0.09 | 0.66** | 0.07 |
| 6. Positive Control (T1) | 2.58 (0.38) | 2.57 (0.42) | −0.19 | −0.05 | 0.06 | 0.42** | 0.04 | — | 0.18 | 0.39 |
| 7. Certainty (T2) | 1.61 (0.76) | 1.49 (0.84) | −0.44** | −0.11 | 0.65** | 0.17 | 0.49** | 0.02 | — | −0.01 |
| 8. Positive Control (T2) | 2.63 (0.33) | 2.61 (0.34) | 0.05 | −0.06 | −0.14 | 0.51** | −0.14 | 0.55** | −0.08 | — |

*Note.* Correlations for the control group beneath the diagonal and for the experimental group above the diagonal; T0 = Time 0; T1 = Time 1; T2 = Time 2; *M* = Mean; *SD* = Standard Deviation.
* $p < .05$. ** $p < .01$.

### Confirmatory factor analysis and measurement invariance

A CFA was performed independently for each one of the study's measures, namely certainty, attachment orientation (anxiety and avoidance) and autonomous/secure support. We also tested MI to ensure that all measures' properties (i.e., loadings, intercepts and residuals) remained relatively equal across time and between the control and experimental groups. While CFA evaluates the alignment of measured variables with an expected factor structure in observed data, MI procedures specifically examine the consistency of measurement properties across time and groups in a study (see Brown, 2015 for further details on these topics). Results from these analyses are presented in Appendix 1. For the certainty scores, we found support for partial scalar MI across time and between groups, whereas for attachment orientation, the results suggest partial strict invariance between scores from participants in the control and experimental groups. Finally, the results also indicated that the factor structure underlying the care workers' positive control scores was equivalent (strict MI) over time and across control and experimental groups.

### Latent difference score model

To address our main hypothesis, we tested a multi-group Latent Difference Score Model (LDSM), examining for the control and experimental groups the difference between consecutive measurements (here represented by t and *t*-1) of care workers' certainty about their own mental states. The model was specified so that the observed score of certainty at t = 2 would be the sum of the certainty score at t = 1 plus the scores' difference between t = 2 and t = 1. This model defines a difference score factor ($\Delta\eta t$), defined by the average difference score between certainty scores at t and t − 1 (usually denoted by $\alpha t$) and its variance. The mean of $\Delta\eta t$ represents the estimated average difference between two consecutive measurements – positive and negative values indicate an increase and decrease in scores from t −1 to t, respectively. The variance of $\Delta\eta t$ can be interpreted as the random variation around the average score difference (see Newsom (2015) for further details on LDSM specification and interpretation). For this study, we extended the basic LDSM to estimate the change in certainty scores while controlling for care workers' baseline attachment-related anxiety and avoidance. These covariates were mean centered to improve interpretation. Furthermore, we used the difference score factors to predict care workers' autonomous/secure support at T1 and T2. These regression parameters represent the expected association between the change rate in care workers' certainty and their scores' positive control over time.

Model testing proceeded by fitting a series for nested models. The baseline model was fully constrained, imposing parameters' invariance across time and

groups (i.e., control and experimental). More specifically, this model imposed equality constraints to corresponding means/intercepts, covariances, and regression paths at different time points and between groups. Results from model fit statistics indicated that this fully constrained model did not meet the conventional recommendations for fit, $\chi2(45) = 66.54$, $p = .020$, RMSEA = .07 (90% CI [.03; .10]), CFI = .92, TLI = .90, SRMR = .10. We then fitted two less parsimonious models, specified by freeing the previous constraints across time, $\chi2(36) = 53.58$, $p = .030$, RMSEA = .07 (90% CI [.02; .10]), CFI = .93, TLI = .90, SRMR = .09, and between groups, $\chi2(28) = 49.32$, $p = .008$, RMSEA = .09 (90% CI [.04; .12]), CFI = .92, TLI = .84, SRMR = .08. These two models did not provide a significantly better fit that the fully constrained model and none of them reached the conventional recommendations for fit. To achieve the best fitting model, we followed a stepwise re-specification process based on the results from nested model comparisons, relaxing specific constraints among some of the model's parameters. The final model freely estimated the intercept of the difference score factor for the experimental group at T1. Different estimates were allowed for the time-invariant effect of attachment-related anxiety on the certainty difference score factor for the control and experimental groups. The effects of the certainty difference score factors on care workers' positive control at T1 and T2 were also freely estimated across groups. Finally, the model also set the effect of attachment-related anxiety on positive control at T1 and T2. Allowing these additional estimates resulted in a model with good fit to data, $\chi2(41) = 47.48$, $p = .227$, RMSEA = .04 (90% CI [.00; .08]), CFI = .97, TLI = .97, SRMR = .09. This final, partially constrained model provided a significantly better fit to the data than the baseline, fully constrained model, $\Delta\chi2(4) = 23.33$, $p < .001$. By trimming the non-significant paths, we achieved a more parsimonious model, $\chi2(45) = 49.10$, $p = .312$, RMSEA = .03 (90% CI [.00; .07]), CFI = .99, TLI = .98, SRMR = .09, without compromising the goodness of fit, $\Delta\chi2(4) = 1.89$, $p = .756$. Figure 1 presents the final model's estimates.

Results indicated that participants in the experimental group, but not in the control group, experienced a significant decrease in their certainty average scores from T0 to T1 ($\alpha = -0.18$, $p = .009$, 95% CI = [−0.32, −0.05]). The change in average certainty was not significantly different from zero from T1 to T2, neither in the experimental nor in the control group. For the control group, we found a positive association between attachment-related avoidance and the change in certainty, both at T1 and T2 (b = 0.08, $p = .044$, 95% CI = [0.00, 0.15], $\beta = .09$). As shown in Figure 1, care worker' scores of autonomous/secure support were fairly stable across time (b = 0.45, $p < .001$, 95% CI = [0.33, 0.58], $\beta = [.39; .55]$). For participants in both intervention conditions, attachment-related anxiety negatively predicted autonomous/secure support at T1, (b = −0.06, $p = .028$, 95% CI = [−0.11, −0.01], $\beta = [-.17; -.18]$). For care workers in the experimental group, the change in certainty was negatively

linked to positive control behaviors, both at T1 and T2 (b = −0.09, $p$ = .011, 95% CI = [−0.16, −0.02], β = [−.16; −.18]). This suggests that care workers who experienced a higher decrease rate of certainty about their mental states across time were more likely to adopt autonomous/secure support strategies in their interactions with children. This relation was not observed for the control group.

## Discussion

The current study aimed to examine the impact of an attachment-based intervention on care workers' RF while controlling for the effects of attachment-related anxiety and avoidance. We also evaluated the implications of the changes in reflective function due to intervention for care workers' provision of autonomous/secure support.

CareME intervention framework was developed considering the crucial role that professionals' relational abilities could have in creating a safe and secure environment for inspiring children's development (Allen, Lemma, & Fonagy, 2012; Carvalho, Mota, Santos, Costa, & Matos, 2022b; Costa, Mota, & Matos, 2022; Ensink, Bégin, Normandin, & Fonagy, 2017; Jacobsen, Ha, & Sharp,

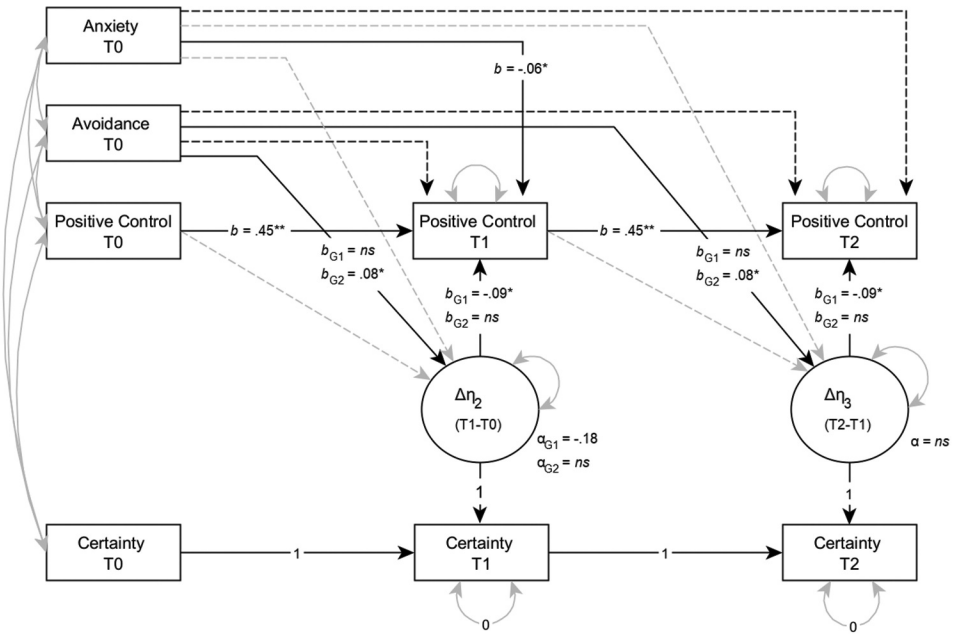


**Figure 1.** Multi-group latent difference score Model; observed and latent variables are depicted as rectangles and circles, respectively; single *b*, with no subscript, is used for representing unstandardized estimates equalized across groups; subscripts *G1* and *G2* denote unique estimates for the experimental and the control group, respectively; $\Delta\eta_t$ = difference score factor; T0 = time 0; T1 = time 1; T2 = time 2. *$p$ < .05.; **$p$ < .01.

2015; Stovall-McClough & Dozier, 2004; Törrönen, 2021). This intervention was framed considering the extensively documented research on RF and secure caregiving (Steele & Steele, 2017; Zeegers, Colonnesi, Stams, & Meins, 2017) and on the effects of trauma on impaired mentalization in children (Ensink, Bégin, Normandin, & Fonagy, 2017).

The effectiveness of CareME was assessed using a 3-wave longitudinal randomized control trial design (pretest, interim test and posttest) involving 212 care workers randomly allocated to an experimental and control group.

During the analysis, two main results emerged that we considered particularly relevant for understanding relational dimensions of care in RC settings and professional development and training. The first result concerns the estimated decrease observed in RF mean levels of certainty during the first three sessions of the intervention, being constant until the end of the intervention. Considering the absence of a significant change in the control group regarding this dimension, this result could be due to relational processes triggered by the CareME intervention. An analysis of RF certainty mean scores prior to intervention indicates that RC professionals show lower levels of certainty when compared to non-clinical samples but higher levels when compared to other non-clinical samplings and controls in the following studies (Cucchi, Hampton, & Moulton-Perkins, 2018; Fonagy et al. 2016). Although there is no expected mean range considering the certainty dimension, a decrease in this dimension in this sample predicted higher levels of autonomous/secure support. Though this preliminary result needs further confirmation, the association between RF processes and a more prone attitude for encouraging autonomy could be particularly relevant when addressing responsive caregiving in out-of-home care. Debate on relational challenges in child welfare, namely in RC responses, addresses how responsiveness could be impaired by projection, emotional exhaustion, and compassion fatigue processes (Audin, Burke, & Ivtzan, 2018; Carvalho, Mota, Santos, Costa, & Matos, 2022a; Kind, Bürgin, Fegert, & Schmid, 2020). Also, in this context, a decrease in certainty levels could be interpreted as a potential protective factor for inspiring one of the most critical dimensions concerning the intergenerational transmission of attachment and of the secure base provision, autonomy granting (van IJzendoorn & Bakermans-Kranenburg, 2019).

A second result regards the decrease observed in certainty levels during the first three sessions, followed by a constant path until the end of the intervention. Several research design issues contributed to the stability of change in care workers' certainty. The first concerns the fact that after the second assessment, the pandemic introduces additional challenges to RC functioning worldwide. In Portugal, although no extreme measures were adopted as institutional closures, youth, families, and professionals underwent a very challenging adaptation process (Carvalho, Mota, Santos, Costa, & Matos, 2022a; Goldman, van Ijzendoorn, Sonuga-Barke, & Lancet Institutional Care

Reform Commission, G, 2020). This unexpected circumstance could have forced professionals to be more task-oriented in addressing urgent and practical issues, challenging mental and physical availability for reflection and mentalizing. There were several narratives of professionals during this process attesting how exhausted and overwhelmed they were by the situation (Carvalho, Mota, Santos, Costa, & Matos, 2022a).

Nevertheless, professionals' narratives during the intervention addressed how CareME sessions were experienced as space-time opportunities "for breathing, for having some oxygen and return." Even though further changes in RF could be compromised by the pandemic crisis since stressful situations seem to be less compatible with mentalization processes. One second hypothetical explanation could be associated with the initial impact of CareME sessions on inducing group RF processes. In session assessments, the widely acknowledged positive outcome of the training stemmed from a universalization group effect. This effect was driven by an enhanced perception that most professional challenges were shared among colleagues, instilling a reassuring sentiment. This could enhance a spillover effect for inducing change, namely for challenging defensive processes and inspiring a secure environment for mentalization in a professional group that often feels disempowered (Colton & Roberts, 2007).

Additionally, there are several effectiveness studies on interventions regarding parenting sensitivity that seem to report higher benefits when brief intervention was conducted (similar results for less than 5 sessions and to 5 to 16 sessions) compared to most extended ones (more than 16 sessions) (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). Felt experiences of being listened to, in a context of genuine interest and a non-judgmental stance, being in a secure base environment (Allen, Lemma, & Fonagy, 2012; Camoirano, 2017) that is focused on professional strengths, but also being in a group that expressed shared difficulties and expectations, could have inspired conditions for improving professionals' reflexive mind. In this sense, these findings are encouraging despite significant changes to the initial intervention brought about by unforeseen difficulties resulting from the COVID-19 epidemic. In fact, the results of the intervention appear even more promising in terms of the potential training effects for eliciting relational dimensions linked to attachment security and responsiveness, especially in light of the fact that the pandemic has presented additional emotional challenges to RC children and caregivers (Carvalho, Mota, Santos, Costa, & Matos, 2022a). Nevertheless, given the exploratory character of the study and the critical implementation period, more research should be conducted to confirm and explore potential training effects on children outcomes and RC caregiving environment.

Several limitations should be addressed in the current research. As in other intervention studies, there are methodological flaws regarding the use of

a specific protocol for implementing the intervention (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003). Several limitations are intrinsically associated with the innovative nature of the study, namely the fact that it was a pilot intervention study implemented during the COVID-19 pandemic, which had several implications in the field of social research and broader in the social welfare domain (Carvalho, Mota, Santos, Costa, & Matos, 2022a). The intervention program was discussed by the team, session by session. Although the core themes and session aims were kept the same, intervention strategies and discussion topics could have been fine-tuned to better respond to a tailored and responsive intervention.

Nevertheless, and considering the need to develop a manualized, empirically supported intervention, the team closely monitored implementation fidelity. In this sense, future interventions based on the CareME protocol should be scaled up and further evaluated. The second limitation regards exclusive self-report assessments for investigating intervention outcomes. Adopting a child-centered approach implies using outcome variables that privilege children and youth assessment. Future studies addressing intervention impact should also include other critical actors in child welfare protection, such as supervisors, families, and other professionals working in RC settings. The third limitation concerns some psychometric issues of the RFQ scale. Recent studies have raised significant concerns regarding the bi-dimensionality of the scale, and, ultimately the use of self-report for assessing such a complex and subject-to-bias construct as RF (Müller et al., 2021; Woźniak-Prus, Gambin, Cudo, & Sharp, 2022). Future studies should address this issue by investigating the potential benefits and pitfalls of using self-reports for capturing RF processes, the added value of material collected on RF processes using these distinctive self-report questionnaires (Müller et al., 2021) and the expected timing for assessing RF changes. A fourth limitation was associated with the changes imposed by the pandemic and by the first lockdown measures. Although there was a great investment in developing a methodological rigorous intervention study, namely using a randomized design, the pandemic could have introduced confounding effects that weren't controlled (e.g., extended shifts, increased workload intensity and on work-family balance). Moreover, the transition from offline to online settings and the temporal hiatus could have imposed additional challenges to the development of a trustful and shared identity within the group, critical for enhancing RF processes (Byrne, Murphy, & Connon, 2020). Future studies should address the role of mentalizing processes in highly emotionally demanding carers, such as RC care workers and crisis management, namely when implying structural changes to RC functioning and relational breakdowns such as those imposed during the pandemic. Future research should examine the impact of social and economic disadvantage on caregivers' RF processes, given the possible influence of socioeconomic factors on RF processes

(Bennett, Regan, Dunsmore, King, & Westrupp, 2023; Borelli, St John, Cho, & Suchman, 2016; Campbell & Allison, 2022).

### *Contributions to child welfare practices and policies*

This study offers significant contributions to understanding care in RC settings. First, advocating for a holding and supportive environment in child protection that ultimately could promote child development to their full potential implies supporting and creating conditions for care. There has been increased attention devoted to understanding how professional characteristics impact sensitive and responsive care (e.g. Garcia Quiroga & Hamilton-Giachritsis, 2017; Sochos & Aljasas, 2021). Interestingly, some relational dimensions of care could be particularly undermined in most stressful RC contexts (Garcia Quiroga & Hamilton-Giachritsis, 2017). Recognizing the role of professionals in creating a secure and holding environment implies also understanding broader factors that interfere with care professionalization. Ultimately, isolating professional care from structural dimensions will artificialize the dynamics that involve RC responses, resulting in distinctive outcomes. A second contribution relies on the idea that regardless of individual relational characteristics, professional caregiving could suffer important changes due to the intervention. If, for some professionals, secure caregiving could be a spontaneous curative act, for others, relational states of affection could trigger distinct caregiving patterns (Crittenden, 1994; Garcia Quiroga & Hamilton-Giachritsis, 2017). Additionally, considering the potential role of reflexive functioning as an important moderator between carers' attachment and children's behavior (Pascuzzo, Cyr, Joly, Rollin, & Cyr-Desautels, 2021), RF processes could work as a preventive factor in critical and most stressful situations, namely in care workers who have gone through less secure attachment experiences.

Ultimately, these results could also offer important ground for understanding RF's role in helping professionals and caregivers integrate past trauma experiences and develop sensitive care. Deliberately creating "space-time opportunities" to cultivate secure base moments for inspiring reflexive functioning processes and fortifying professionals' self-awareness as secure base figures (Carvalho, Mota, Santos, Costa, & Matos, 2022b; Morison, Taylor, & Gervais, 2019) could prove especially beneficial in developing therapeutic care (Carrera, Román, & Jiménez-Morago, 2020).

A third and last implication is a corollary of the current research and regards the role that mentalizing and attachment framework could have in improving professional caregiving responses. Genuine interest and curiosity about children's mental states are thus crucial for creating a secure ground so children can experiment themselves in exploring their own mental states and those of others, an activity that

could have been impaired in the past (Allen, Lemma, & Fonagy, 2012; Ensink, Bégin, Normandin, & Fonagy, 2017). Integrating this component in caregiving practices, besides being "crucial for ensuring sensitive responses" (Pascuzzo, Cyr, Joly, Rollin, & Cyr-Desautels, 2021) could also help caregivers gain self-awareness of emotional triggers that could contribute to enhancing empathic processes such pitfalls such as compassion fatigue or secondary traumatic stress (Audin, Burke, & Ivtzan, 2018; Morison, Taylor, & Gervais, 2019). Interventions that promote carers' behaviors, such as sensitivity and RF, and children's outcomes in the child welfare system should, therefore, be elect as critical determinants of care synchrony, nurturance, stability of care, and commitment (Stovall-McClough & Dozier, 2004).

## Notes

1. The term children will be used in the current study following the United Nations Convention on the Rights of the Child to refer to all human beings below 18 years old.
2. Education levels were described according to the International Standard Classification of Education (ISCED): Primary and lower secondary (ISCED level 2 or below) correspond to caregivers who are between the 1st and 9th grade; Secondary (ISCED levels 3 or 4) correspond to caregivers who are between the 10th and 12th grade; Tertiary (ISCED level 5 or above) levels of education, correspond to caregivers who have a higher education, bachelor's, master's or doctoral degree.

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## Ethics declarations

The project ethical approval was granted by the Faculty of Psychology and Education Sciences, University of Porto Ethics Committee (reference: 2019/09-5). Informed consent was obtained from all participants included in the study.

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