



Quality of Interactions, Children’s Psychological Adjustment and Parental Stress in Foster Families: the Mediating Role of Parental Sense of Competence

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Received: 10 September 2022 / Accepted: 4 April 2023 / Published online: 17 April 2023
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Abstract

Foster children’s emotional and behavioral difficulties are often a challenge for foster caregivers, who may experience reduced feelings of competence in their parental role, as well as increased levels of parental stress. In turn, these difficulties can negatively affect the quality of the interactions between them. In the present work, our first objective was to analyze the quality of the interactions between 49 Spanish foster children aged 4–9 years and their main caregivers, and its relationship with some variables, which were studied as potential predictors: the caregivers’ parental stress and sense of competence, the children’s psychological adjustment difficulties, and the children and caregivers’ socio-demographic profile. We assessed caregiver-child interactions using an observational task (*Co-Construction Task*). The caregivers completed standardized questionnaires regarding their parental stress (*Parenting Stress Index-Short Form; PSI-SF*), parental sense of competence (*Parenting Sense of Competence Scale; PSOC*), and foster children’s psychological adjustment difficulties (*Strengths and Difficulties Questionnaire; SDQ*). Also, we obtained their socio-demographic information through the families’ caseworkers. The second objective was to examine whether caregivers’ parental sense of competence mediated the relationship between children’s psychological adjustment difficulties and caregivers’ parental stress. Results concerning our first objective showed that caregivers’ parental stress and children’s age were significant predictors of the quality of caregiver-child interactions. As for the second objective, our mediation model indicated that parental sense of competence partially mediated the relationship between children’s psychological adjustment difficulties and caregivers’ parental stress. Lastly, we comment on some practical implications based on our results, which point to the need to include both self-report and observational measures when assessing and intervening with foster families.

Keywords Caregiver-child interactions · Psychological adjustment · Parental stress · Parental sense of competence · Family foster care

Highlights

- Few studies explore caregiver-child interactions in foster care using observational methods
- In foster care, more studies are needed to explore the relationship between caregiver-child interactions, the family context, and children’s characteristics
- The quality of caregiver-child interactions in a Spanish sample of foster care dyads is predicted by caregivers’ parental stress and children’s age
- Foster caregivers’ parental sense of competence mediates the relation between children’s psychological adjustment difficulties and parental stress

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Foster care is a protection measure for children and adolescents who have suffered severe adversity and maltreatment in their families of origin. Foster families take care of children’s development and education with the support and supervision of child protection authorities, although no legal ties are established between these caregivers and children. The development of a child in foster care, from an

ecological-systemic perspective, depends on multiple influential factors at different contextual levels (Hong et al., 2011; Richardson et al., 2018). At the most immediate level we find the relationship between the child and his or her caregivers (Hong et al., 2011). Caregivers play an educational and therapeutic role aimed at the recovery of foster children, trying to meet children's emotional, material, and educational needs throughout the foster care placement (Dozier et al., 2013; Dallos et al., 2015). For that purpose, foster caregivers rely on intrinsic and extrinsic resources to respond to the demands of foster parenting (Berrick & Skivenness, 2012; Cooley et al., 2019). According to Abidin's theoretical model (Abidin, 1992), caregivers make a subjective appraisal of different environmental, personal, and behavioral variables that relate to their parenting role and evaluate their influence as harmful or beneficial to their parenting. This self-assessment is essential to determine this level of parental stress, which ultimately influences how functional their parenting is. Then, when parenting demands are too high or threatening as caregivers' resources do not seem to be enough, they may experience doubts about their ability and competence in exercising their role as caregivers and may feel an increase in their levels of parental stress (Cooley et al., 2019; Gabler et al., 2018; Jiménez et al., 2013; Jiménez-Morago et al., 2018; Vanderfaeillie et al., 2012).

Among foster parenting demands, some of the most difficult to face are the children's emotional, behavioral, and social difficulties, which are derived from past situations of negligence, abuse, and abandonment (Dozier & Rutter, 2016), as well as a protection trajectory characterized by residential, legal, and relational instability, often including institutionalization (Gunnar & Bowen, 2021; Palacios et al., 2019). These difficulties are one of the main factors that can compromise foster families' therapeutic role and impair the relationship between caregivers and foster children, sometimes leading to a breakdown of the placement (Oosterman et al., 2007). Thus, without losing sight of the multi-directional relationships that take place in any family context, the more complex needs of foster children, who also tend to be placed in foster homes at older ages, make it necessary to pay special attention to the child-to-parent effects in this protection measure (Alexandris et al., 2013; Newton et al., 2014; Vanderfaeillie et al., 2012).

As we detail below, previous literature suggests that children's psychological adjustment difficulties, along with caregivers' feelings of stress, inefficacy, and low satisfaction are some of the main variables that affect the relationship between children and their caregivers, which may be reflected in the quality of the interactions that take place between them. When we refer to caregiver-child interactions, we define them as complex patterns of mutual understanding and unfolding of synchronous transactions

that occur between them (Bornstein, 2013). From a dyadic perspective, three central features determine the quality of caregiver-child interaction: sensitivity, enjoyment, and coordination (Moss et al., 1998; Steele et al., 2007). In this sense, the good quality of caregiver-child interaction is defined by: 1) the adult's sensitivity and appropriate response to the child's cues; 2) the ability of both the child and the adult to show a positive, affectionate, and warm verbal and non-verbal emotional tone that reflects their feelings of enjoyment; and 3) fluidity and coordination, so that the respective contributions of the adult and the child are balanced. On the other hand, the presence of negative caregiver-child interactions (characterized by the adult ignoring or rejecting the child's inputs, a lack of coordination and understanding between the two, and the absence of enjoyment in the child and the adult) is related to important bonding difficulties between the caregiver and the child, and vice versa (Bovenschen et al., 2016; Dozier & Rutter, 2016; Joseph et al., 2014). This, in addition to hindering the development of secure relationships between them, continues to favor the presence of children's psychological adjustment difficulties (Dubois-Comtois et al., 2015; Fuentes et al., 2015; Salas et al., 2015; Vanderfaeillie et al., 2012), which are understood as deficits in the ability to function adequately in the environment through their cognitive, behavioral, emotional, and social resources (Schoeps et al., 2019).

Firstly, concerning foster children's psychological adjustment difficulties, a poorer quality of the interaction between caregivers and children tends to be characteristic of those families where children present more emotional and behavioral problems (Dubois-Comtois et al., 2015). On their part, foster caregivers who are more stressed and feel more overwhelmed in their parental role also tend to be less sensitive when interacting and dealing with these children (Farmer et al., 2005; Gabler et al., 2018; Pitillas & Berástegui, 2018). Similarly, in adoptive samples, some authors have found that the level of parental stress is negatively related to the quality of parent-child interaction (Steele et al., 2007). Thirdly, regarding parental sense of competence, defined as the caregivers' feelings of satisfaction with their parenting role and belief that they are playing effectively (Oltra-Benavent et al., 2020), mixed results have been found concerning its relationship with caregiver-child interactions in community families, specifically about perceived parental efficacy (Albanese et al., 2019). Some authors point out that better perceived parental efficacy is related to more positive parenting and child behaviors during these interactions (Mouton & Roskam, 2015). In addition, some studies on foster and adoptive families report that there are also socio-demographic characteristics of caregivers, such as their educational level (León et al., 2018) and other child-related factors, such as age, which

also seem to affect caregiver-child interaction (Dozier & Bernard, 2019; Dozier & Rutter, 2016). For instance, Ponciano (2012) suggests that experiencing parenting as a simple and manageable task facilitates the establishment of quality interaction patterns between the foster caregivers and the child, which disadvantages older children, who are perceived as having more complex needs.

Therefore, evidence shows that emotional and behavioral problems of foster children are associated with caregivers' parental sense of competence and parental stress. In turn, all these variables may be related to a poorer quality of caregiver-child interactions. However, some studies also highlight the relevant role of the parental sense of competence as a variable that seems to be underlying the relationship between the children's difficulties and their influence on parental stress. These studies suggest that those foster caregivers who perceive to have a greater ability to manage difficulties related to the child's disruptive problems are likely to experience less stress (Cooley et al., 2015; Morgan & Baron, 2011). Then, perceived parental inefficacy would play a key role in foster caregivers' internal attributions, dissatisfaction with the caregiving role, and increased negative feelings related to stress and anxiety (Whenan et al., 2009). Although some existing evidence indicates that foster parents usually present a strong parental sense of competence (Jiménez-Morago et al., 2018), which is consistent with the training process and the suitability assessment required to conduct family fostering, different levels of perceived efficacy and satisfaction should be considered. Cooley & Petren (2011) highlight that the variability in the parental competence perceived by foster caregivers is not only related to the training processes but is also influenced by the self-perception of the foster parents themselves before initiating their duty as caregivers. Nevertheless, high-quality interventions can prevent and reduce caregivers' stress in the face of children's behavioral and emotional problems (Cooley et al., 2015; Salas et al., 2015). However, these interventions should be adjusted to different levels of parental competence and consider the heterogeneity we found in children's psychological adjustment profiles (Bernedo et al., 2014; Fisher et al., 2016).

Our study is contextualized in Spain, where foster care plays a very relevant role in CPS. In 2021, 18,455 children were living with foster families in this country, and Andalusia, where our sample was recruited, was the region with the second largest number of foster placements (Ministry of Social Rights and 2030 Agenda, 2022). In this context, the present work aims to improve the understanding of the variables that play a relevant role in the functioning of family foster care (Carrera et al., 2016). Specifically, the study seeks to explore some of these important variables (the quality of family interactions, children's psychological adjustment, and caregivers' parental stress and sense of

competence) from a joint and combined perspective, focusing on their relationships and mutual influence. Very few studies have explored caregiver-child interactions in detail, despite the importance of these interactions for the good progress of the foster care placement and the consolidation of the relationship between the caregivers and their foster children. There is also a lack of studies that aim to assess the relationship between caregiver-child interactions and different family processes and socio-demographic characteristics of children and their caregivers. Particularly, there are almost no studies that analyze the relationship between diverse variables together (Dubois-Comtois et al., 2015; Farmer et al., 2005; Gabler et al., 2018). Furthermore, the literature reviewed suggests that caregivers' parental sense of competence may be key to the level of stress they experience in the face of emotional and behavioral problems of foster children, although more research is needed to demonstrate this relationship (Jiménez-Morago et al., 2018; Morgan & Baron, 2011; Whenan et al., 2009).

To this end, with an exploratory purpose, in a sample of non-kin foster families, our first objective was to study whether the quality of the caregiver-child interaction in these families, obtained through an observational task, was related to and could be predicted by foster children's psychological adjustment difficulties, by foster caregivers' level of parental stress and parental sense of competence, and by some socio-demographic characteristics of the caregiver and the child. The second objective was to determine whether the relationship between children's psychological adjustment and parental stress was mediated by caregivers' parental sense of competence.

Method

Participants

The sample was composed of a total of 49 children ($n = 24$, 48.98% male; $n = 25$, 51.02% female) aged 4–9 years ($M = 7.1$; $SD = 1.65$) in non-kin foster families and their respective main caregivers, all from Andalusia (Spain). On average, these children were declared abandoned when they were around 3.5 years ($SD = 1.99$), after living with their biological families up to a maximum of 7.75 years ($M = 3.96$; $SD = 2.02$). Before entering CPS, 43 children (87.76%) were neglected, 45 (91.84%) were psychologically or emotionally abused, 22 (44.89%) were physically abused, and up to 11 (22.45%) were sexually abused. Prior to the current foster care, 38 participants (77.55%) had spent from 6 months to 3 years and a half in previous placements ($M = 1.78$ years; $SD = 1$). Of these, 25 (51.02%) had been in only one placement; 9 (18.37%) had been in two placements; and 4 (8.16%) had been in three placements. They

were placed with their current families at an average age of 4.47 years ($SD = 2.16$), with whom they had spent an average of 2.21 years ($SD = 2.07$) when this study was conducted. All children had been in their current foster placement for at least five months and the duration of the placement was not significantly related to any of the study variables. Regarding the foster children's health at the time of the study, almost the entire sample presented no diagnosed psychological disorders ($n = 45$; 91.84%) or chronic diseases ($n = 46$; 93.88%).

The age of the foster caregivers varied between 31 and 69 years ($M = 47.44$; $SD = 7.86$) and they were predominantly female ($n = 37$; 75.51%). Regarding their educational level, 19 (38.78%) families had higher education, whereas 14 (28.57%) had professional qualification studies, 6 (12.24%) had secondary education, and 10 (20.41%) had primary education. In most of the cases ($n = 32$, 65.31%), the foster families had biological children living with them. In addition, 20 families (40.82%) had experience with previous foster care placements and had been foster caregivers for an average of almost 6 years ($M = 5.94$; $SD = 3.88$).

Procedure

The present study is part of the project entitled “*Socio-emotional and cognitive development of children in foster care. Adversity, family processes and adaptation*”, whose objectives are to study the functioning of non-kin foster families, the socio-demographic profile of foster caregivers and foster children, and the development and adaptation of the latter during the foster care placement. The study was approved by the Andalusian Biomedical Research Ethics Coordinating Committee and the regional child protection authorities, who requested two family foster care organizations (Márgenes y Vínculos Foundation and APRONI) to collaborate in the study.

For the present work, we had four sample eligibility criteria: 1) children in non-kin foster care in the provinces of Seville or Cadiz (Andalusia); 2) children between 4 and 9 years old; 3) children who had been in foster care for a minimum of five months; and 4) children without severe disabilities. A total of 65 families met these criteria, of whom 13 did not eventually participate in the study: seven of them refused to participate, mainly due to a lack of time, and the caseworkers of another six families declined their evaluation because the families were already being assessed at the time or the children were in transition to other measures. However, attrition analyses show that there were no differences between the participating and non-participating children regarding the available data (age of entry into CPS, age at the time of the study, and gender). From the initial 52 families that we assessed, one was excluded because the

child did not finally meet the eligibility criteria with respect to time in foster care and, additionally, two other families did not complete two of the instruments used for the present work.

Regarding data collection, our study followed a cross-sectional design. We had different information sources: 1) the caseworkers from the family foster care organizations, who provided data about the families and children, as well as information about the development of the foster care placements and the history of the child in CPS; and 2) the caregivers and the foster children, whose information was obtained through family home visits. Each visit lasted 2 to 3 h, on average. They were conducted by two psychologists from the research team who were specialized in family foster care. After pilot testing, we applied the entire battery of instruments of the research project during each visit. This battery included the instruments listed below, as well as other instruments addressed to foster caregivers and children. Lastly, we loaded the information into a statistical database and subsequently analyzed it.

Instruments

Caregiver-child interaction

We measured the dyadic interactions between the main caregiver and the foster child in each family using an observational instrument called *Co-Construction Task* (Steele et al., 2005, 2007). We asked them to participate in a construction game with wooden blocks of different sizes, shapes, and colors, and they were recorded in video. The instruction we gave them was as follows: “*I would like you to build something using as many blocks as you can. I am going to leave you alone to build for five minutes*”. Based on the coding manual, we assessed verbal, non-verbal, global, and dyad codes from each recording. Firstly, for each foster parent and child, we micro-analytically coded both their verbal behavior (e.g., use of questions or positive reinforcement) and non-verbal behavior (e.g., gestures of support in the task or use of positive facial expressions) dichotomously (presence or absence). These were coded every 10 s of the recording (17 codes in total). In addition, we coded seven caregiver's global codes and six child's global codes on a Likert scale from 0 (“none”) to 3 (“almost always”). Global codes are related to the general behavior of the foster caregivers and the child during the whole task, such as the controlling attitude of the adult over the game or the attention shown by the child throughout the construction. Lastly, the instrument includes four codes related to the dyad as a whole, such as the creativity or the rhythmicity displayed by both of them during the construction, which were scored from 0 (“poor”) to 3 (“excellent”). In the present study, we focused on the global and dyad codes.

Two members of the research team were trained for the coding of this instrument. For the coded data, they obtained an inter-judge agreement between 0.72 and 1, measured with Cohen's kappa.

To carry out the objectives of our study, we created an index from some global and dyad codes observed in the construction task that could indicate the quality of the interaction between the foster caregiver and the child. To this end, we first selected the key codes following the conceptual and theoretical criteria about what is defined as a quality interaction (Steele et al., 2007; Steele & Steele, 2007). In addition, for the selection of the codes and the composition of the index, we also followed statistical criteria, to ensure that the included variables presented a strong, significant, and positive correlation between them and with the general index. Considering these criteria, the index designed to assess the quality of the interaction, which we called *interaction quality index*, was ultimately composed of seven codes, each one scored from 0 to 3: 1) *creativity* of the dyad (level of creativity that the dyad showed during the construction task, e.g., according to the complexity of their constructions or the stories and arguments that accompanied these constructions); 2) *rhythmicity* of the dyad (fluency of the transitions and movements between the adult and the child during the task, regarding both verbal and non-verbal coordination); 3) *quality* of the dyad (level of enjoyment in the task, balance between the adult and the child); 4) child's *positive quality of demeanor* (level of positive affectivity of the behavior of the child toward the adult during the task); 5) caregiver's *positive quality of demeanor* (level of positive affectivity of the adult toward the child during the task); 6) caregiver's *encouragement* (presence of encouragement and facilitating behaviors of the adult toward the child during the task); and 7) caregiver's *sensitivity* (adjustment of the adult to the needs of the child during the task). The score on the index (0 to 3) represented the mean score on the codes. This index presented good reliability ($\alpha = 0.85$).

Foster children's psychological adjustment

Foster caregivers reported on the psychological adjustment of the foster children through the *Strengths and Difficulties Questionnaire (SDQ)* (Goodman, 1997). We used the translated and validated Spanish version (Rodríguez-Hernández et al., 2012), aimed at parents, and properly adapted to family fostering. The questionnaire consists of five scales, with five items each: four of them are clinical scales, which measure the emotional symptoms, behavioral problems, problems in the relationship with peers, and hyperactivity, whereas the fifth scale measures the pro-sociality of the child, as a positive aspect. Every item can be scored on a scale from 0 to 2, thus the score on each scale varies from 0

to 10. Then, a score on the total difficulties scale is obtained by adding the score on each clinical subscale, with a maximum score of 40 points. Both on each subscale and the total scale, children can be classified into three different ranges (normal, borderline, or abnormal/clinical), whose cut-off points are formulated in a way that 80% of the population falls into the normal range, 10% in the borderline range and the remaining 10% in the clinical range. We used the total difficulties scale for the present work. For this scale, a score from 0 to 13 corresponds to the normal range; from 14 to 16 to the borderline range; and from 17 to 40 to the abnormal or clinical range. The reliability analyses indicated a Cronbach's alpha coefficient of 0.80 for the total scale.

Parental stress

To measure the parental stress experienced by the foster caregivers, we used the self-report questionnaire *Parenting Stress Index-Short Form (PSI-SF)* (Abidin, 1995), in its translated and validated Spanish version (Rivas et al., 2021) adapted to foster families. This reduced version of the instrument consists of 36 items, whose values are presented on a 5-point Likert scale, where higher scores indicate greater stress. It allows obtaining the score on the total stress experienced by foster caregivers, as well as the score on three 12-item subscales, related to different sources of stress: 1) *Parental Distress*, which measures the stress related to the role as caregivers (lack of support, tension with the partner, excess of responsibilities, etc.); 2) *Parent-Child Dysfunctional Interaction*, which gathers the stress derived from dissatisfaction with the child with respect to previous expectations about his/her development, as well as the extent to which the child favors their duty as caregivers; and 3) *Difficult Child*, which refers to the ease of control over the child's behavior. We used the total stress score for this work. Previously, authors who performed the validation in Spanish population obtained a mean of 66.45 ($SD = 14.2$) for this scale. Regarding the reliability analysis, the total scale showed a good internal consistency ($\alpha = 0.93$).

Parenting sense of competence

The *Parenting Sense of Competence Scale (PSOC)* (Johnston & Mash, 1989) is a self-report questionnaire that consists of 16 items, scored through a Likert-type scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"). It has been translated and validated in Spanish (Oltra-Benavent et al., 2020). It evaluates the perception of parental competence, in this case, regarding the care of foster children. It gathers information about the view of foster caregivers about their capacity to positively influence their foster children and face difficulties, as well as about their strategies and behaviors to

facilitate a good adaptation and adequate development of the child in the family. It is divided into two subscales. The first subscale is composed of seven items and explores the self-perceived efficacy as a caregiver, whereas the second subscale has nine items and evaluates the satisfaction that foster caregivers show towards this role. The score on each subscale is obtained through the sum of its respective items and, lastly, the total scale is the sum of all the items. In this way, the higher scores correspond to more positive self-perceptions. We analyzed the total parental sense of competence score for the present work, for which other authors obtained a mean of 78.7 ($SD = 10.7$) in Spanish population (Oltra-Benavent et al. 2020). Regarding the internal consistency of the instrument, we obtained a reliability of $\alpha = 0.83$ for the total scale.

Socio-demographic data-sheet

The socio-demographic data used for this study (children's age and gender, and caregivers' level of studies) were collected through a data-sheet filled in by the caseworkers of the foster care organizations. This sheet also included additional socio-demographic information, as well as some data about the type of protection measure and the child's protection record (e.g., type of family alternative or the child's experience in CPS).

Data analyses

We performed statistical analyses using *SPSS-26*. Firstly, we obtained the frequencies and descriptive statistics of central tendency and dispersion of each instrument used in the study, and the reliability analyses were conducted through Cronbach's alpha. Then, we applied several methods to observe the relationships between the analyzed variables: Pearson's bivariate correlation, Student's *t*-tests, multiple linear regression analysis, and simple mediation analysis. As for the regression analysis, we applied a stepwise selection. During the process of developing the final model, there is a continuous re-evaluation of the predictors included in the model, to ensure that, if any regressor is explained by the remaining ones, it is eliminated, as it lacks its own specific contribution. Regression analyses met the assumptions of linearity, independence of errors, homoscedasticity, normality, and absence of collinearity. We performed the mediation analysis using the *PROCESS* v3.5 macro for *SPSS* (see Hayes, 2017, and visit <http://www.processmacro.org/index.html> for more information about this tool). This analysis followed a simple mediation design, which included the children's psychological adjustment difficulties (*SDQ*) as the predictor variable (*X*), the parental sense of competence (*PSOC*) as the mediator variable (*M*), and parental stress (*PSI-SF*) as the dependent variable (*Y*).

Results

Our first objective was to explore the quality of the interaction in the dyads formed by the child and his or her main caregiver, using the index that was previously detailed in the methodology, in relation to some variables regarding the foster caregiver and the child: 1) caregivers' parental stress; 2) caregivers' parental sense of competence; and 3) children's psychological adjustment difficulties. We show the descriptive results of central tendency and variability of these variables in Table 1. Then, we ran correlations between the interaction quality index and the total scores on *PSI-SF*, *PSOC*, and *SDQ*, which we also present in Table 1.

The correlations were significant, as detailed in Table 1, with a medium ($r \geq 0.24$) and large ($r \geq 0.37$) effect size (Cohen, 1988, 1992; Fritz et al., 2012), except for the correlation between the index and parenting sense of competence. Thus, a higher score on parental stress and psychological adjustment difficulties was related to a lower score on the interaction quality index. Furthermore, the higher the foster caregivers' level of stress, the lower their parental sense of competence and the greater the children's psychological adjustment difficulties. Finally, a better parental sense of competence was related to lower psychological adjustment problems.

In addition to these variables, our first objective also sought to explore whether some socio-demographic characteristics of the children and their caregivers were related to the studied variables. Specifically, we assessed children's age and gender in relation to the quality of interactions and children's psychological adjustment difficulties. We also assessed the relationship between caregivers' educational level and the quality of interactions, their parental stress, and their parental sense of competence. We only obtained a negative and significant correlation between children's age and the quality of interactions ($r = -0.38$, $p < 0.01$), with a large effect size. Children's age was not related to their psychological adjustment difficulties ($r = 0.07$, $p > 0.05$). No significant differences were found in the quality of interactions ($t(37) = -0.74$, $p > 0.05$) or children's psychological adjustment difficulties ($t(47) = 0.29$, $p > 0.05$).

Table 1 Descriptive statistics and correlations of the interaction quality index, parental stress (*PSI-SF*), parenting sense of competence (*PSOC*), and psychological adjustment difficulties (*SDQ*)

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.
1. Interaction quality index	2.25	0.58	–	–0.41**	0.19	–0.29*
2. <i>PSI-SF</i>	64.43	18.45	–	–	–0.69**	0.58**
3. <i>PSOC</i>	57.53	9.95	–	–	–	–0.29*
4. <i>SDQ</i>	13.65	6.28	–	–	–	–

Note. * $p < 0.05$; ** $p < 0.01$

Table 2 Regression model for the interaction quality index

Predictor variables	<i>B</i>	<i>SD of B</i>	β	<i>t</i>	<i>p</i>
Constant	21.51	1.96		10.99	0.00
<i>PSI-SF</i>	-0.08	0.03	-0.34	-2.63	0.01
<i>Child's age</i>	-0.06	0.03	-0.31	-2.39	0.02

according to children's gender. Moreover, no significant correlations were obtained between caregivers' educational level and the quality of interactions ($r = 0.05$, $p > 0.05$); parental stress ($r = 0.18$, $p > 0.05$); and parental sense of competence ($r = -0.23$, $p > 0.05$).

Considering the significant relationships found, we performed a multiple linear regression model to analyze the variables that predict the quality of the interaction in these dyads. We used a stepwise regression, introducing parental stress, age, and the psychological adjustment difficulties of the children as independent variables of the model. The final model included parental stress as the variable that best predicts the quality of the interaction, followed by the age of the child (Table 2), while total psychological adjustment difficulties was eliminated as a predictor variable ($\beta = -0.10$, $t = -0.64$, $p > 0.05$). The regression model, including parental stress and the children's age, was significant ($F(246) = 7.96$, $p < 0.01$), with its predictor variables explaining 25.7% of the variance of the quality of the interaction ($R^2 = 0.257$).

The second objective was to assess the association of the variables related to the foster caregivers (parental stress and parental sense of competence) and the children (psychological adjustment difficulties). Based on the results found in previous studies (Cooley et al., 2015; Jiménez et al., 2013, Jiménez-Morago et al., 2018; Morgan & Baron, 2011; Whenan et al., 2009), we proposed a mediation hypothesis, which states that the children's psychological adjustment problems should predict caregivers' parental stress through caregivers' parental sense of competence (Fig. 1). Previously analyzed socio-demographic characteristics were not included as covariates, since they did not prove to have any significant relationship with the studied variables. The model explained 62.95% of the total variance of the variable parental stress (*PSI-SF*). The statistical significance of parental sense of competence as a mediator variable was calculated through a bootstrapping procedure with 5000 iterations and a 95% confidence interval for the indirect effect, where significance was indicated by the fact that 0 was not included in this interval. Therefore, our mediation model was significant, showing a significant indirect effect of children's psychological adjustment difficulties on caregivers' parental stress through caregivers' parental sense of competence, $b = 0.48$, 95% CI [0.10, 0.93].

These results indicate that the psychological adjustment problems of foster children had a significant and positive

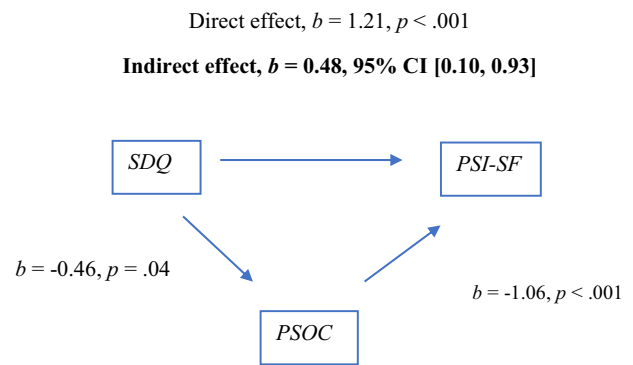


Fig. 1 Model of partial mediation between the psychological adjustment difficulties of the children, parental stress, and parental sense of competence

effect on caregivers' parental stress, meaning that the latter increased with greater emotional and behavioral difficulties. Moreover, a greater level of children's psychological adjustment difficulties was significantly related to a lower parental sense of competence in caregivers. In turn, this variable was negatively related to parental stress (a greater parental sense of competence predicted lower parental stress). Furthermore, the indirect effect found in the model indicates that parental sense of competence partially mediates this relationship, which means that the influence of the psychological adjustment difficulties of the children on parental stress is explained, in part, by the level of parental competence perceived by these foster caregivers. That is, with greater levels of parental sense of competence, the influence of the psychological adjustment difficulties of the children on parental stress was lower.

Discussion and conclusions

The first objective of the present work was to analyze the quality of the interaction between children in foster care and their main caregivers in relation to children's psychological adjustment difficulties, caregivers' parental stress, caregivers' parental sense of competence, and both children and caregivers' socio-demographic characteristics (children's age and gender, and caregivers' level of studies). An observational task was used to measure caregiver-child interactions. The quality of these interactions was coded as a single global measure (interaction quality index). From a dyadic perspective, this measure assessed the extent to which both caregivers and children displayed a positive attitude during the task (including expressions of warmth and affection towards each other, and sensitivity of the adult to the child), as well as the coordination of their actions.

Regarding the descriptive analyses, firstly, the dyads generally presented a good quality of interaction, according to the mean score obtained in the index. Furthermore, the

mean score of the children's total psychological adjustment difficulties fell within the lower cut-off point of the borderline range. This finding is in line with the results of previous studies (Jiménez-Morago et al., 2018) and slightly more positive than the results obtained by other authors (García-Quiroga et al., 2017; Jiménez-Morago et al., 2015). Therefore, this result supports the need to consider the diversity regarding foster children's behavioral and emotional problems that has been found in different samples (Bernedo et al., 2014; Fisher et al., 2016). Foster caregivers showed an average level of parental stress similar to the results of previous studies with community and foster families (Abidin 1995; Jiménez et al., 2013; Rivas et al., 2021). Furthermore, parental sense of competence was lower than that reported in other studies conducted on community (Johnston & Mash, 1989; Oltra-Benavent et al., 2020) and foster care samples (Jiménez-Morago et al., 2018). In the latter case, our lower score may be explained by the fact that the authors studied foster families with more extensive and specific training than that received by the caregivers in our sample.

Then, correlation analyses showed that a poorer quality of interaction is related to an older age of the child, a greater presence of children's psychological adjustment problems, and a higher level of caregivers' parental stress. These findings are also in line with the results of previous studies (Dubois-Comtois et al., 2015; Farmer et al., 2005; Gabler et al., 2014; 2018; Pitillas & Berástegui, 2018; Steele et al., 2007). The effect size found in these significant correlations was, in all cases, medium or large, indicating that we could expect generalizable results if we had a larger sample. However, the relationship between parental sense of competence and the quality of the interaction was not significant. A possible explanation for this result may be that, unlike the self-report on parental stress, which refers to the caregiver's relationship and experience with the foster child in particular, the assessment of the parental sense of competence not only addresses the caregivers' experience concerning the current placement, but it also considers their general background as caregivers (Cooley & Petren, 2011; Jiménez-Morago et al., 2018). Moreover, correlation analyses between children's psychological adjustment difficulties, parental stress, and parental sense of competence also revealed that, firstly, a greater level of parental stress in foster parents is related to greater children's psychological adjustment difficulties (Cooley et al., 2019; Dallos et al., 2015; Gabler et al., 2018; Jiménez et al., 2013; Vanderfaillie et al., 2012). Secondly, they indicated that, as foster caregivers rate their parental sense of competence more negatively, they tend to report higher levels of stress and foster children show a larger number of emotional and behavioral problems (Cooley et al., 2015 2019; Jiménez-Morago et al., 2018; Whenan et al., 2009).

Next, the regression model conducted to predict the quality of the interaction pointed to caregivers' parental stress and foster children's age as the predictor variables. Thus, although both children's emotional and behavioral problems and caregivers' parental stress are negatively related to the quality of the interaction, when studied together as possible predictors, it is ultimately revealed that the feeling of stress related to foster parenting is reflected in their interactions. These are characterized by less enjoyment, less coordination between the child and the caregiver, and a less sensitive attitude on the part of the adult (Farmer et al., 2005; Gabler et al., 2018). In addition, these results indicate that those dyads with younger children show a better quality of interaction in the task. Our findings are in line with those of other studies that found less affectionate and sensitive interactions between adults and children when the latter are older and present more complex upbringing needs (Dozier & Bernard, 2019; Pitillas & Berástegui, 2018; Ponciano, 2012; Steele et al., 2007).

Moreover, in our sample, caregivers' parental sense of competence was related to their parental stress and children's psychological adjustment difficulties, and it acted as a partial mediator between them. This mediating role has been explored by some authors (Morgan & Baron, 2011), although, in contrast with the present work, such authors have focused on a clinical population. Our mediation model indicated that, while greater emotional and behavioral difficulties in children lead to higher levels of stress, those who feel greater efficacy and satisfaction as foster carers experience lower levels of stress in the presence of these difficulties. Although the cross-sectional analysis of our data does not allow us to test further hypotheses regarding the evolution of the level of parental sense of competence throughout the foster care placement (Whenan et al., 2009), it seems that the influence of children's psychological difficulties on the stress of their caregivers is buffered by a higher perception of parental competence.

To sum up, we can conclude that, in our sample of non-kin foster families, the quality of caregiver-child interactions is predicted by caregivers' parental stress and foster children's age. Moreover, caregivers' parental stress is predicted by children's psychological adjustment difficulties, partially through caregivers' parental sense of competence. However, this study presents a series of limitations. One of them implies the difficult access to the assessment of foster families, which limits the sample size. Another limitation is related to the use of self-reports with foster families. Even though they are particularly important to know caregivers' own subjective experience, we cannot rule out the possibility that the data may contain a certain bias. Furthermore, our quantitative approach when coding the observational task allowed us to obtain a measure that describes the quality of the interaction in our sample, and that can be related to other variables.

However, we lack reference studies to compare our results with and, therefore, the interpretation of our findings should be taken with caution. In addition, despite the exploratory nature of this research, which addresses an understudied topic, our cross-sectional design does not allow us to draw conclusions about the direction of the studied child-to-parent effects. Then, future directions of our study could be focused on replicating our findings in a longitudinal study with a larger sample, which includes the assessment of alternative paths. In this sense, it would be relevant to analyze the reciprocal influence of caregivers' parental stress, parental sense of competence, and foster children's psychological adjustment difficulties.

Implications for practice

Lastly, our results highlight some fundamental intervention needs in foster families. Observational instruments are considered the most appropriate way to analyze caregiver-child interaction, since they generate more complete and objective information than self-report measures. Particularly, they are very useful for research and professional practice in order to identify functional and dysfunctional behaviors in caregiver-child interactions without the risk of getting systematic biases (Gardner, 2000). However, their use is limited in the research on foster care population and other samples related to CPS (Cañas et al., 2020). Recordings extracted from observational instruments such as the one used in the present study (*Co-Construction Task*) can be useful as a starting point to improve the quality of the interactions between children and their caregivers. An intervention based on the professional feedback about caregiver-child interactions can be used to help foster caregivers identify and interpret the signals that their foster children send out. Having the opportunity to reflect with an expert on their own and their foster children's behaviors, as well as being able to think of alternative responses they give to these children, may improve their sensitivity and responsiveness towards them and make parenting more manageable (Dozier et al., 2002; Gabler et al., 2018; Krishnamoorthy et al., 2020; Pitillas & Berástegui, 2018; Steele et al., 2007). In this work, we were also able to observe that the stress informed by the foster caregivers themselves is coherently related to our external assessment of caregiver-child interactions. In this regard, we would like to underline that this was a playful task with no intention of generating any situation of conflict between the child and the caregiver. Based on our data, it seems evident that the professionals who work with foster families must ask and explore caregivers' parenting experiences proactively and explicitly. This assessment should be done thoroughly from the beginning of the foster placement, not only when some difficulties become serious. Then, paying attention to their rewards and difficulties while upbringing the foster child, their stress levels, and their sources of support would allow

identifying a significant proportion of homes at greater risk of developing problems (Leathers et al., 2019). In addition to the importance of group training before the fostering process, some authors refer to the need for foster caregivers to obtain professional support about the difficulties that children present, with more specific and stable interventions being useful in this regard (Jiménez et al., 2013; Jiménez-Morago et al., 2015; Salas et al., 2015), such as in-home-support or providing continuous advice from more veteran foster caregivers that can guide them based on their own experiences (Cooley & Petren, 2011). Finally, it also seems evident that it would be especially beneficial to offer more individualized support and a more detailed screening in terms of variables like the parental sense of competence (Jiménez-Morago et al., 2018; Morgan & Baron, 2011). In particular, we suggest assessing this variable at the beginning of each foster care placement or in the first follow-ups so that professionals can identify families who need more support to improve their parenting skills as the placement develops.

Acknowledgements We thank the families, children, and caseworkers who altruistically participated in this study.

Author Contributions All authors contributed to the conception and design of the study. Material preparation, data collection, and analysis were performed by N. Molano, E. León, J. M. Jiménez-Morago, and C. Camacho. The first draft of the manuscript was written by N. Molano and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Funding Funding for open access publishing: Universidad de Sevilla/CBUA.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethics Approval This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Andalusian Biomedical Research Ethics Coordinating Committee (07/18/2016/ID: 0147-N-16).

Informed Consent Informed consent and verbal assent (for participants under 18 years old) were obtained from all individual participants included in the study.

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