

## Brazilian Version of the Coparenting Relationship Scale: Reliability and Validity Evidence

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**Abstract:** The coparenting relationship plays a central role in family interactions. However, Brazil lacks information on the psychometric properties of internationally recognized instruments to assess coparenting. *Escala da Relação Coparental* (CRS-BR) is the Brazilian version of the Coparenting Relationship Scale. In this study, we examine: (a) internal validity evidence of the CRS-BR based on confirmatory factor analysis and gender invariance tests; (b) reliability evidence of each instrument factor, and (c) external validity evidence based on discriminant validity and correlations with measures of theoretically-related constructs. Participants included 238 mothers and 195 fathers with children aged up to 6 years of age. Confirmatory factor analysis revealed a good fit for the Brazilian participants using the same six factors that showed satisfactory reliability levels for North American parents. Additionally, we found evidence for configural, metric and scalar invariance regarding the parents' gender. The six CRS-BR subscales demonstrated acceptable reliability. As for evidence of discriminant validity, only two CRS-BR factors (undermining and conflict) exhibited higher than expected correlations with father's social desirability scores. Consistent with the literature, we found some correlations between coparenting and child adjustment. Our results offer substantial support for contemporary coparenting theories and indicate that the CRS-BR can be used with Brazilian parents of children up to six years old, thus facilitating the integration of Brazilian findings with international work on coparenting.

**Keywords:** Parenting Alliance, Evaluation, Precision, Psychometric Properties.

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## Versão Brasileira da Escala de Relação Coparental: Evidência de Validade e Confiabilidade

**Resumo:** A relação coparental desempenha um papel central nas interações familiares. No entanto, no Brasil, há carência de informações sobre as propriedades psicométricas de instrumentos internacionalmente reconhecidos para avaliar a coparentalidade. A Escala da Relação Coparental (CRS-BR) é a versão brasileira da *Coparenting Relationship Scale*. No presente estudo foram examinadas: (a) evidências de validade interna da CRS-BR, com base em análise fatorial confirmatória e testes de invariância de gênero; (b) evidências de confiabilidade de cada fator do instrumento; e (c) evidências de validade externa, baseadas na validade discriminante e correlações com medidas de construtos teoricamente relacionados. Os participantes incluíram 238 mães e 195 pais, que tinham um filho de até 6 anos de idade. Com base na análise fatorial confirmatória, foi encontrado um bom ajuste para a amostra brasileira, utilizando os mesmos

seis fatores que tiveram níveis de confiabilidade satisfatórios na amostra americana. Além disso, houve evidências de invariância configural, métrica e escalar em relação ao gênero. As seis subescalas da CRS-BR demonstraram confiabilidade aceitável. Com relação às evidências de validade discriminante, apenas dois fatores da CRS-BR (sabotagem e conflito) apresentaram correlações acima do esperado com escores paternos de desejabilidade social. Em consonância com a literatura, foram encontradas algumas correlações entre a coparentalidade e o ajustamento infantil. Esse conjunto de resultados oferece um apoio substancial às teorias contemporâneas de coparentalidade e indica que a CRS-BR pode ser usada com pais brasileiros de crianças de até seis anos, o que facilitará a integração de achados brasileiros com trabalhos internacionais sobre coparentalidade.

**Palavras-chave:** Aliança Parental, Avaliação, Precisão, Propriedades Psicométricas.

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## Versión brasileña de la *Coparenting Relationship Scale*: Evidencia de Confiabilidad y Validez

**Resumen:** La relación de coparentalidad juega un papel central en las interacciones familiares. Sin embargo, en Brasil, falta información sobre las propiedades psicométricas de los instrumentos internacionalmente reconocidos para evaluar la coparentalidad. La *Escala da Relação Coparental* (CRS-BR) es la versión brasileña de la *Coparenting Relationship Scale*. Este estudio examina: (a) la evidencia de validez interna de la CRS-BR, basada en análisis factorial confirmatorio y pruebas de invarianza de género; (b) la evidencia de confiabilidad de cada factor del instrumento; y (c) la evidencia de validez externa, basada en validez discriminante y correlaciones con medidas de constructos teóricamente relacionados. Participaron 238 madres y 195 padres que tenían al menos un hijo de hasta 6 años. El análisis factorial confirmatorio encontró un buen ajuste para la muestra brasileña, utilizando los mismos seis factores que tuvieron niveles satisfactorios de confiabilidad en la muestra estadounidense. Además, hubo evidencia de invarianza configural, métrica y escalar en relación con el género. Las seis subescalas de la CRS-BR demostraron una confiabilidad aceptable. En cuanto a la evidencia de validez discriminante, solo dos factores de la CRS-BR (sabotaje y conflicto) presentaron correlaciones superiores a lo esperado con puntuaciones paternas de deseabilidad social. De acuerdo con la literatura, se encontraron algunas correlaciones entre la coparentalidad y el ajuste infantil. Este conjunto de resultados proporciona un apoyo sustancial a las teorías contemporáneas sobre la coparentalidad e indica que la CRS-BR puede ser utilizada con padres brasileiros de niños de hasta 6 años de edad, lo que contribuye a la integración de los hallazgos brasileños con los trabajos internacionales sobre la coparentalidad.

**Palabras clave:** Alianza Parental, Evaluación, Precisión, Propiedades psicométricas.

Significant changes in mothering and fathering roles have expanded father involvement in many families (Backes, Becker, Crepaldi, & Vieira, 2019). Despite benefits generated by such changes for all family members, the involvement of both parents requires greater communication and articulation between coparenting partners. Coparenting refers to the ways parents (or other parental figures) relate to and coordinate with each other regarding issues involving their parental roles (Feinberg, 2003). Academic and clinical interest in coparenting quality has increased over the past decade due to findings demonstrating its critical role in supporting parents' mental health, parenting

quality, and child well-being (Faria, 2015; Kim & Teti, 2014; Lamela & Figueiredo, 2016; McDaniel & Teti, 2012; Mosmann, Costa, Einsfeld, Silva, & Koch, 2017; Murphy, Jacobvitz, & Hazen, 2016; Pedro & Ribeiro, 2015; Schoppe, Mangelsdorf, & Frosch, 2001; Zemp, Milek, Davies, & Bodenmann, 2016).

Comparing and integrating information on coparenting at an international level requires an internationally validated and accepted measure of this variable. In this regard, evidence points to the Coparenting Relationship Scale (CRS) (Feinberg, Brown, & Kan, 2012) as an instrument that may enable such work. The CRS is based on a theoretical coparenting model and has a

strong body of validity evidence for its use in the US. This measure has also been translated and applied in at least 25 countries spanning five continents, demonstrating its relevance in culturally diverse contexts. Moreover, formal validation studies have been conducted in some of these countries, such as Romania, France, Portugal, and Sweden (Dumitriu et al., 2022; Favez et al., 2021; Lamela, Morais, & Jongenelen, 2018; Lee, Feinberg, & Wells, 2021). Having a common instrument like the CRS to evaluate coparenting in different countries can contribute to refining concepts on coparenting and to examining how cultural and national policy differences may affect this relationship.

Thus, to contribute to international work on coparenting, we present: (a) an overview of how coparenting is currently defined and described in the literature, and (b) reliability and validity evidence for the Brazilian version of the Coparenting Relationship Scale (CRS-BR).

## Coparenting

Coparenting occurs when parental figures share childrearing responsibilities (Feinberg, 2003). Besides more visible, practical issues such as division of responsibilities and assisting one another in accomplishing particular tasks, the concept also extends to psychological and emotional aspects of the coparenting relationship. Such aspects include the emotional support offered by each member of the dyad to the other, and discussions between the coparenting partners on how to align parenting behaviors with both partners' values regarding the child's upbringing (Feinberg, 2003; Feinberg et al., 2012; Van Egeren & Hawkins, 2004). Feinberg (2003) states that although it often involves the same two people, the coparenting relationship—focused on the child—differs from the marital relationship, which involves romantic and sexual aspects as well as other ways in which each partner contributes to the couple's joint activities and responsibilities.

Various family subsystems (conjugal, parental, coparental) are important to the family context, as each subsystem has different functions. The interactional processes that occur in each subsystem influence the psychological adjustment of children and parents (Lamela, Figueiredo, & Bastos, 2013; Mosmann, Costa, Silva, & Luz, 2018). Interparental relations have a particularly strong influence, as parents are jointly responsible for structuring family relations (Mosmann et al., 2018). Additionally, families are

complex systems which are directly affected by broader historical, social, and cultural transformations.

Based on these considerations, Feinberg (2003) developed a model of the internal coparenting structure or dynamics to guide the development of coparenting-focused interventions. According to his model, coparenting comprises four inter-related components: (a) agreement (or disagreement) regarding childrearing principles and behaviors; (b) division of labor; (c) support or undermining of the other partner's parental role; (d) joint family management, including managing conflicts and alliances between family members, including or excluding one's partner in parenting, and giving importance to each parent's interactions and involvement with the child.

Feinberg (2003) holds that coparenting is at the center of a complex network of associations between individual, family, and contextual influences. Coparental relations, in turn, can influence multiple outcomes for parents and children. Based on evidence supporting this model, Mosmann et al. (2018) highlighted the importance of establishing positive interactions between the couple that contribute to using responsive parenting practices with their children, as these interactions affect the healthy development of family members. Carvalho and Barham (2016) summarized evidence for the associations between coparenting and related constructs, such as indicators of parent socioemotional adjustment and child socioemotional development, and reported that coparenting showed positive correlations with quality of the marital relationship, parenting quality, and child socioemotional regulation, as well as negative correlations with marital conflict, parental stress, parents' depressive symptoms, children's negative emotionality and child behavior problems.

## Instruments to Assess Coparenting

In conducting a literature review on self-report instruments to assess coparenting and comparing the validity and reliability evidence of each instrument, Carvalho and Barham (2016) found eight instruments, none of Brazilian origin nor adapted for the Brazilian population. After comparing the conceptual and empirical dimensions of the constructs, the authors chose the Coparenting Relationship Scale (CRS) (Feinberg et al., 2012) for cross-cultural adaptation for use in the Brazilian context.

Originally created to assess coparenting, the CRS consists of 35 items that cover seven dimensions of the coparenting relationship: coparenting agreement (agreements and disagreements on how to be good parents), coparenting closeness (emotional closeness in the coparenting relationship), coparenting support (receiving partner support for one's own parenting behaviors), coparenting endorsement (acknowledging and encouraging one's partner's parenting behaviors), division of labor, coparenting undermining (showing hostility towards or rejecting the other parent), and child exposure to parental conflicts (Feinberg et al., 2012). Initial validity evidence of the US CRS was reported based on responses from 152 couples (first-time fathers and mothers) who completed the instrument at three time points, when their child was 6, 12, and 36 months of age. The construct's 7-dimension factor structure was confirmed and shown to be stable over time. Additionally, Cronbach's alpha values ranged from 61 to 90 for six of the seven subscales, indicating adequate internal reliability. Correlations between the two items of the "division of labor" subscale, however, ranged from weak to moderate, considering correlations at the three time points (Feinberg et al., 2012).

The importance of having good quality coparenting measures has led researchers in other countries to work on adapting this instrument, as is being done in Brazil (Carvalho et al., 2018). Cross-cultural adaptation is a process that involves translation and back-translation, as well as a series of analyses to evaluate whether the adapted version is equivalent to the original instrument. Adapting and validating instruments for evaluation people in Brazil enables Brazilian researchers and practitioners to explore information on these same constructs, allowing them to compare their findings with those obtained in other cultural contexts and thus contribute new findings (Pacico, 2015).

As reported by Carvalho et al. (2018), during development of the Brazilian CRS—entitled *Escala da Relação Coparental* (CRS-BR)<sup>1</sup>—the adapted instrument was completed answered by 171 Brazilian couples with at least one 4- to 6-year-old child. Although the original instrument was tested with parents of children up to 3 years of age (Feinberg et al., 2012), Brazilian researchers were interested in analyzing

validity evidence of the CRS-BR for parents of slightly older children given the family profile of parents seeking assistance. However, reliability values above analysis found values above 70 were found for only four of the seven subscales (coparenting support, coparenting endorsement, coparenting undermining, and child exposure to parental conflicts).

Given these results, the authors suggested conducting a confirmatory factor analysis to verify whether the items should be grouped in the same subscales for the Brazilian context. Additionally, the authors recommended conducting studies to establish further validity evidence for the CRS-BR, such as testing theoretically-expected associations with other constructs (Carvalho et al., 2018). It would also be important to include responses of parents with children up to six years of age, thus covering parents of children in the age range studied by Feinberg et al. (2012) and Carvalho et al. (2018). Moreover, if the CRS-BR can be used with parents during the first six years of their child's life, this would contribute to evaluating coparenting programs offered to parents of older children.

Thus, the objectives of this paper were to: (a) evaluate the adequacy of the factor-structure of the Coparenting Relationship Scale for American parents to represent the coparenting experiences of Brazilian parents; (b) verify whether mothers and fathers have similar or different perceptions of the coparenting relationship; (c) analyze the reliability of each CRS-BR subscale when used with parents of children up to 6 years of age; and (d) examine external validity evidence based on discriminant validity and correlations with other theoretically-related constructs.

## Method

### Participants

Study participants included 238 mothers and 195 fathers, totaling 433 Brazilian participants aged 18 years or over and who had at least one child up to 6 years of age. If the participating parents had more than one child under 6, they were asked to think of the child that most concerned them, to obtain a sample with greater variability in coparenting behaviors (i.e., a sample that included parents facing difficulties

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<sup>1</sup> The instrument name was first translated as *Escala da Relação Coparental* (ERC). However, to indicate that it is an adaptation of the Coparenting Relationship Scale, we are now using the original acronym followed by 'BR' (CRS-BR).

in dealing with their child's needs). Mothers were between 21 and 56 years old, with an average age of 33.0 years ( $SD = 6.18$  years), whereas fathers were between 22 and 51 years old, with an average age of 35.3 years ( $SD = 6.02$  years). Additional sociodemographic information is presented in Table 1.

## Measures

**Sociodemographic questionnaire.** This instrument was developed for the present study and contains questions about the sociodemographic profile of the participants, such as age, gender, education, income, profession, number of children, among others.

Table 1

Sociodemographic characteristics of mothers (n = 238) and fathers (n = 195).

Characteristic	Response options	Mothers %	Fathers %
Marital status	Single	6.8	5.6
	Married; Common-law relationship	84.8	89.7
	Remarried	3.4	1.0
	Separated/Divorced	5.1	3.6
Are you living with your partner?	Yes	87.8	92.3
	No	12.2	7.7
Are you living with the child?	Yes	100	94.9
	No	0	5.1
Time living together	Since child's birth	99.1	95.7
	Less time	.9	4.3
Days per week that you are with your child	1 to 6	2.5	10.3
	7	97.5	89.7
Schooling level	Primary education – incomplete	8.1	7.9
	Primary education graduate	2.6	5.2
	Secondary education – incomplete	8.1	7.9
	Secondary education graduate	33.3	27.2
	Tertiary education – incomplete	5.6	11.5
	Tertiary education graduate	42.3	40.3
Work	Works outside the home	78.2	99.0
	Does not work outside the home	21.8	1.0
Number of children	1	50.9	50.5
	2	32.6	33.2
	3	11.3	15.3
	4 or more	5.2	1.1
Monthly family income ( <i>number of minimum wages</i> <sup>1</sup> )	Up to 2	31.2	15.6
	2 – 4	25.4	33.0
	4 – 10	30.7	36.9
	10 – 20	11.7	13.4
	> 20	1.0	1.1
Child's gender	Female	48	51.4
	Male	52	48.6

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Characteristic	Response options	Mothers %	Fathers %
Type of school that child attends	Public	58	36.9
	Private	42	63.1
Child has special needs?	Yes	3.8	1.5
	No	96.2	98.5
Age of child (years)	Average	4.0	4.0
	Standard deviation	1.45	1.48

Minimum wage = minimum monthly wage that a full-time Brazilian employee should be paid.

**Escala da Relação Coparental.** The *Escala da Relação Coparental* (CRS-BR) is the Brazilian version (Carvalho et al., 2018) of the Coparenting Relationship Scale (Feinberg et al., 2012), an instrument used to evaluate coparenting regarding agreement, closeness, support, endorsement of the partner's parenting, division of labor, undermining, and child exposure to parental conflicts. Participants indicate how much the behavior described is true of their relationship with their partner using a 7-point Likert scale ranging from 0 (*not true of us*) to 6 (*very true of us*). For the final subscale, "exposure to conflict," responses are registered using a scale ranging from 0 (*never*) to 6 (*very often – several times a day*).

**Marlowe-Crowne Social Desirability Scale.** The Brazilian version of the Marlowe-Crowne Social Desirability Scale (SDS-BR; Ribas Jr., Moura, & Hutz, 2004) short form is a 13-item self-report instrument used to assess respondents' propensity to give answers considered to be socially acceptable, rather than revealing advantage-taking behaviors that are likely to have happened. Respondents indicate whether it is "true" or "false" that they present the behaviors described in each item. Ribas Jr. et al. reported satisfactory validity evidence for the internal structure of the SDS-BR considering factor analyses, internal consistency coefficients, and tests of response stability over time (test-retest).

**Escala de Comportamentos Sociais de Pré-escolares.** The Brazilian version of Merrell's (2002) Preschool and Kindergarten Behavior Scale (PKBS-BR) was developed by Dias, Freitas, Del Prette and Del Prette (2011). It includes 74 items that cover three factors for assessing pro-social behaviors (social cooperation, social independence, and social interaction), and two factors for assessing preschoolers' problematic behaviors (externalizing and internalizing behaviors).

The scale can be used with parents or teachers. Each item is rated on a four-point frequency scale ranging from "never" to "often." Satisfactory evidence regarding internal consistency and confirmation of the expected factor structure have been reported for the Brazilian version (Dias et al., 2011).

## Data collection

Mothers and fathers were contacted (at school meetings and by invitation) to present the study objectives. Participants were also recruited using the snowball technique (Vinuto, 2014). Those who showed an interest in participating were invited to attend their children's school at pre-established times to fill in the instruments. Parents who were unable to participate at these scheduled times could ask to be sent the instruments and then return them to their child's teacher in sealed envelopes.

Each participant received two copies of the informed consent form and the questionnaires to be filled out. Importantly, this study is part of a larger research project that involves using additional questionnaires. However, so that study participation did not become overly long and tiring, all participants answered the sociodemographic questionnaire, the *Escala da Relação Coparental* (CRS-BR), and just one or two other instruments (in this case, either the Marlowe-Crowne Social Desirability Scale or the *Escala de Comportamentos Sociais de Pré-escolares* – PKBS-BR).

## Data analysis

Each questionnaire returned was examined to assess whether the responses seemed valid, excluding data from participants who showed problems (e.g., those with low literacy skills, who had difficulties in

understanding instructions or items). The number of missing values was then verified item by item. When the amount of missing data for a given item involved less than 10% of respondents, estimation and replacement was performed using expectation maximization.

**Confirmatory factor analysis.** Confirmatory factor analysis (CFA) of the CRS-BR was conducted using the MPlus software (Muthén & Muthén, 2017). After verifying the existence of extreme values (outliers), the normality of the scores distribution for each CRS-BR item was examined considering the criteria for asymmetry (-3 to +3) and kurtosis (-7 to +7) for submitting data to a factor analysis, as defined by Marôco (2014).

Using the factor-structure reported by Feinberg et al. (2012), the values for the factor loadings for each item were then checked to verify if they were higher than 40, to assess adherence of the Brazilian findings to the original factorial model (Hair, Black, Babin, Anderson, & Tatham, 2009). Additionally, to test the seven-factor structure proposed by Feinberg et al. (2012), the following cut-off values for various adjustment indices were used for the CFA: (a)  $X^2/df < 5$ , (b) Comparative Fit Index (CFI)  $> .90$ , (c) Tucker Lewis Index (TLI)  $> .90$  and (d) Root-Mean-Square Error of Approximation (RMSEA)  $< .6$  (Brown, 2006; Hooper, Coughlan & Mullen, 2008). Analysis effectiveness was assessed by the estimator WLSMV (weighted least square mean and variance adjusted), as it does not assume that the variables are normally distributed and are suitable for categorical (ordinal) variables (Brown, 2006).

**Invariance.** CRS-BR invariance was verified in two different samples (mothers and fathers) using the MPlus software since some of the study participants were members of coparenting dyads and were, therefore, not independent. Invariance analysis is used to verify the degree of equivalence between the configuration and the parameters of responses to a given psychometric instrument for different groups (Damásio, 2013). Thus, we can determine whether the same factor structure is a good fit for samples with different characteristics, such as differences in gender (Laros, 2012). Cultural, contextual, and developmental factors can influence how people perceive themselves and their relationships with others; consequently, researchers are now testing the equivalence of the factor structure initially reported for a given instrument in samples with different characteristics, rather than assuming that the initially-reported structure is invariant (Laros, 2012). Verifying invariance is

fundamental for developing guidelines for psychometric instrument use (Damásio, 2013). In this study, we tested the configural, metric and scalar invariance of the CRS-BR regarding the parents' gender.

Invariance can be tested using the same reference values for adjustment indices that indicate goodness of fit for CFA ( $X^2/df$ , CFI, TLI and RMSEA) following a sequential process considering, first, configural, then metric and finally scalar invariance. If the initial indices are adequate, the same factor structure is deemed acceptable for all the groups tested, indicating configural invariance across groups. Secondly, the measure's metric invariance is assessed across groups (Borsa & DeSousa, 2018; Damásio, 2013). Thirdly, scalar invariance is tested. Metric and scalar invariance are inferred when the reduction in the Comparative Fit Index (CFI) and the Root-Mean-Square Error of Approximation (RMSEA) values is no greater than .01 when compared with values observed in the previous step (Milfont & Fischer, 2010). Values for metric invariance are compared with values for configural invariance, and values for scalar invariance are compared with values for metric invariance. When the differences in these values are below the criterion, it is concluded that the instrument items are being answered similarly by each group, indicating scalar or metric invariance.

**Reliability.** After examining the results of the confirmatory factor analysis, we verified the reliability of each factor of the *Escala da Relação Coparental*, based on the proposed factor structure, considering the following indicators: Cronbach's alpha, McDonald's omega, composite reliability, and average variance extracted (AVE). Regarding Cronbach's alpha, values of .60 (and preferably .70) are the criteria for the lower limit of acceptability (Hair et al., 2009). According to Revelle and Zinbarg (2009), omega values can be analyzed using the same criteria as those used for alpha values. For composite reliability, values above .70 indicate that the subscale has good reliability and for AVE, values equal to or greater than .50 indicate an adequate model fit (Valentini & Damásio, 2016).

**Correlations with external variables.** We first verified the normality of the distribution of scores for each factor of each instrument using the Kolmogorov-Smirnov test (since the size of all samples was greater than 50), and examined the values of asymmetry and kurtosis. If the result of the Kolmogorov-Smirnov test was significant ( $p < .05$ ), the distribution of the sample scores was considered to be non-parametric.

Additionally, for this type of analysis, asymmetry, and kurtosis values greater than 2 or less than -2 were also considered as indicating significant divergence of the sample distribution from a normal distribution (Gravetter & Wallnau, 2014). Based on the results, at least one of the variables to be included in each of the planned correlation tests lacked a sampling distribution that was approximately normal. Thus, associations between the constructs of interest were analyzed using Spearman's correlation.

**Discriminant validity.** Correlation between the CRS-BR scores and the social desirability scale (SDS-BR) was verified to determine the instrument's discriminant validity which would be indicated by independence between responses to the CRS-BR and the SDS-BR, when correlation values are  $< .20$  (Nunes & Primi, 2010).

**Measures evaluating theoretically-related constructs.** Correlations between factor scores on the CRS-BR and on an instrument used to measure the parents' perceptions of their children's social behaviors were examined to assess associations between coparenting and this theoretically-related construct. Confirmation of expected relations are indicated by correlation values between  $.20$  and  $.50$  (Nunes & Primi, 2010).

## Ethical considerations

Data collection began following approval by the Human Research Ethics Committee of the Federal University of São Carlos (reference number 1.540.455). Participants were informed of the study conditions and objectives and signed the informed consent form before completing the instruments. Participant privacy was respected as much as possible, with data collection conducted in places with little circulation of other people. Additionally, participant confidentiality in the presentation of results was ensured. Every care was taken to conduct the study complying with the Brazilian Resolution number 466, published on December 12, 2012.

## Results

### Confirmatory Factor Analysis

We first checked the existence of extreme values. The number of outliers was within the expected percentage for a normal curve in which 5% of the values

are more than two standard deviations above or below the mean. Additionally, based on an examination of the score distribution for each subscale, we noted that extreme values indicated a low-quality coparenting relationship. All scores were therefore retained considering the importance of having a sample as representative as possible of the population of parents with children in early childhood, including people with difficulties in the coparenting relationship. Regarding the normality of the distribution of responses, the values of asymmetry and kurtosis for all the CRS-BR items were within the range considered acceptable for a factor analysis ( $-3$  to  $+3$  and  $-7$  to  $+7$ , respectively) according to Marôco (2014).

Next, the factor-model presented by Feinberg et al. (2012), composed of seven factors<sup>2</sup>, was tested in the Brazilian sample. For this purpose, the factor loadings (which should be  $> .40$ ) were checked and item 5 (*"My partner likes to play with our child and then leave the dirty work to me"*) was excluded for presenting a value (.36) that was too low. However, after excluding item 5, the "division of labor" factor consisted of only one item and, for this reason, was excluded from the model. After this exclusion, the factor loadings for the model varied between  $.40$  and  $1.02$ . Values above 1, although not desirable, are possible and can occur for several reasons like the presence of outliers and sample fluctuations (Kolenikov & Bollen, 2012; Muthén & Muthén, 2017). Table 2 presents the reference values and the goodness of fit values obtained for each of the indices in the six-factor structure model tested, after excluding the "division of labor" factor.

Table 2

Goodness of fit of the US factor structure for Brazilian parents who completed the *Escala da Relação Coparental*: reference values and adjustment indices.

	Reference values	Values in the Brazilian sample
CMIN/DF	$< 5$	2.11
CFI	$> .90$	.94
TLI	$> .90$	.94
RMSEA	$< .08$	.05

Note. CMIN/DF = chi-square / degrees of freedom, CFI = Comparative Fit Index, TLI = Tucker Lewis Index e RMSEA = Root-Mean-Square Error of Approximation

<sup>2</sup> The proposed structure contained seven factors; however, in the validation study by Feinberg et al. (2012), one of the factors, "Division of Labor," presented low reliability indicators (the correlations between the two items of the subscale varied from weak to moderate).

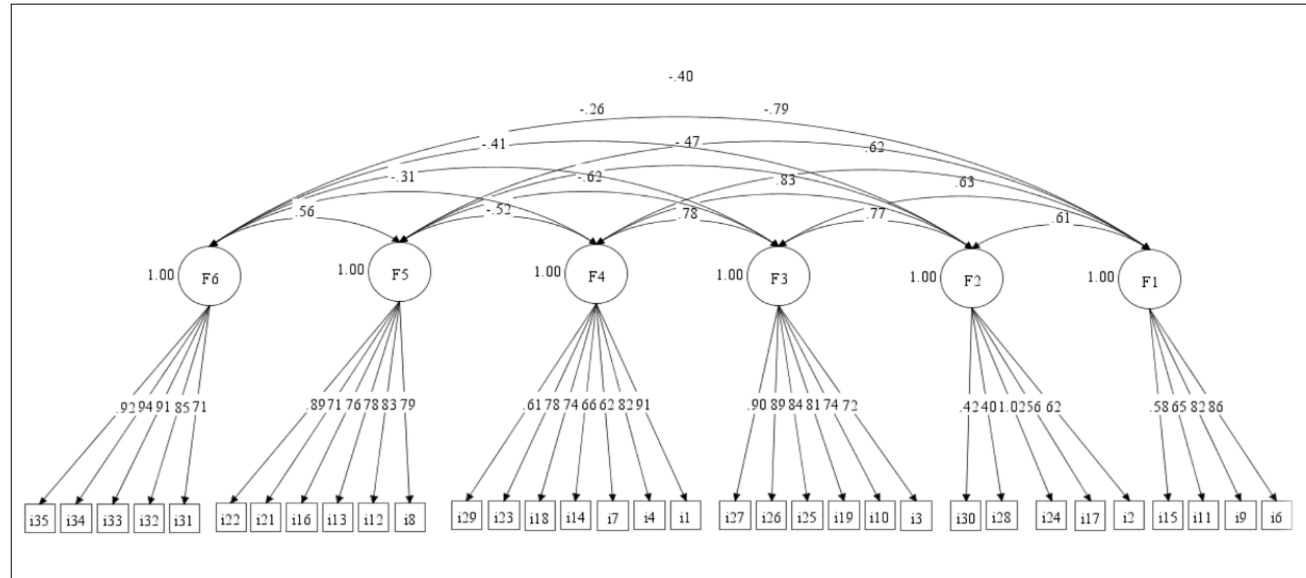


We compared the values obtained for each global adjustment indicator with the reference values, and the four indices used revealed a good fit of the six-factor model for the Brazilian sample. The magnitude of the correlations between each of the dimensions showed great amplitude, ranging from -.26 (weak) to

.83 (strong) (Dancey & Reidy, 2019). Although the correlations between some of the factors were high, the model is better represented by correlated factors than by models with a second-order factor or bifactor. In Figure 1, the final structure of the Brazilian CRS-BR after the confirmatory factor analysis.

Figure 1

Final factor structure of the Escala da Relação Coparental (CRS-BR) for Brazilian parents.



Note. F1 = Coparenting Agreement, F2 = Coparenting Closeness, F3 = Coparenting Support, F4 = Endorse Partner's Parenting, F5 = Coparenting Undermining, F6 = Exposure to Conflict

## Invariance

The adjustment indices for configural invariance were: CMIN / DF = 1.59, TLI = .93, CFI = .94, and RMSEA = .05. Metric and scalar invariance had differences (delta) in the CFI and RMSEA adjustment indices equal to .001. Results indicate a configural invariance of the CRS-BR between the two samples (mothers and fathers), since all adjustment indexes were below the reference values. Additionally, we found evidence for metric and scalar invariance since delta values were also less than .01.

## Reliability

Four different measures of internal consistency are reported in Table 3, considering each of the six sub-scales of the CRS-BR confirmed in the factor analysis, based on data collected with Brazilian parents. Alpha

and omega values ranged between .60 and .88. Values for composite reliability ranged between .76 and .94. Finally, values between .42 and .76 were found for the average variance extracted.

Based on these results, for five of the six factor scores and the total score, the alpha values can be considered satisfactory (>.70) and one of the factors (Coparenting Closeness) presented an acceptable value (> .60). All omega values were higher than the alpha values. For composite reliability, all the observed values were above the minimum expected (> .70). As for the average variance extracted, five factor scores and the total score had values above the criterion (> .50), but the factor "Coparenting Closeness" presented a value below expectations. To identify any items that could be contributing to this we examined the inter-item correlations for this factor (Table 4).

Table 3

*Escala da Relação Coparental*: number of items and indicators of internal reliability.

Coparenting factor	No. of items	Cronbach's alpha coefficient	McDonald's omega	Composite reliability	Average variance extracted
Coparenting Agreement	4	.71	.72	.82	.54
Coparenting Closeness	5	.60	.63	.76	.42
Coparenting Support	6	.86	.87	.92	.67
Endorse Partner's Parenting	7	.79	.81	.89	.55
Coparenting Undermining	6	.79	.81	.91	.63
Child Exposure to Conflict	5	.88	.89	.94	.76
Total Score	33	.76	.79	.98	.60

Table 4

Inter-item correlations for the “coparenting closeness” factor of the *Escala da Relação Coparental*.

	Item				
	2	17	24	28	30
2. My relationship with my partner is stronger now than before we had a child.	1	-	-	-	-
17. I feel close to my partner when I see him or her play with our child.	.44	1	-	-	-
24. We are growing and maturing together through experiences as parents.	.64	.58	1	-	-
28. The stress of parenthood has caused my partner and me to grow apart.	.14	.13	.19	1	-
3. Parenting has given us a focus for the future.	.38	.34	.50	.11	1

Six of the correlations were weak and four were moderate, with item 28 (“*The stress of parenthood has caused my partner and me to grow apart*”) showing the lowest correlations with each of the other items, varying between .11 and .19. In light of these results, internal consistency values for this factor were recalculated after excluding item 28, leading to the following results: Cronbach's alpha coefficient = .66, McDonald's omega = .68, composite reliability = .77, and average variance extracted = .48.

## Correlations with External Variables

**Discriminant validity.** Evidence regarding the discriminant validity of the CRS-BR was obtained correlating the six factors confirmed by the CFA and the total CRS-BR score with scores on the social desirability scale (Table 5).

Based on these results, no statistically significant correlations were found for mothers. For fathers, statistically significant correlations were found between scores on each of the two negative subscales (undermining and conflict) and the total score on the Social Desirability Scale, but none for the four positive CRS-BR subscales.

**Measures evaluating related constructs.** To verify evidence regarding the relationship between CRS-BR

results and other measures used to evaluate theoretically-related constructs, scores on each of the six factors and the total score for the CRS-BR were correlated with scores on another instrument used to assess child adjustment. Table 6 presents the results.

Table 5

Spearman's correlation coefficients for factor scores of the *Escala da Relação Coparental* (CRS-BR) and the total score of the Brazilian Social Desirability Scale.

Coparenting	SDS-BR-Total	
	Mothers (n = 130)	Fathers (n = 63)
CRS-BR-Total	ns	ns
Agreement	ns	ns
Closeness	ns	ns
Support	ns	ns
Endorsement	ns	ns
Undermining	ns	-.28*
Exposure to conflict	ns	-.43**

*Note.* SDS-BR-Total: Total score on the social desirability instrument

CRS-BR-Total: Total score on the coparenting instrument

\*  $p < .05$ ; \*\*  $p < .01$ ; ns = non-statistically significant correlation

Table 6

Spearman's correlation coefficients for factor scores on the *Escala da Relação Coparental* (CRS-BR) and on the Prosocial Skills and Problematic Behaviors Factors of the *Escala de Comportamentos Sociais de Pré-escolares* (PKBS-BR), for mothers and fathers.

Coparenting	PKBS-BR: Prosocial Skills						PKBS-BR: Problematic Behaviors							
	Social cooperation		Social independence		Social interaction		Prosocial skills-Total		Externalizing behaviors		Internalizing behaviors		Problematic behaviors-Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
CRS-BR-Total	ns	.29*	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
Agreement	.29*	ns	ns	ns	ns	ns	ns	ns	-.33*	-.30*	.30*	-.37**	-.36**	-.36**
Closeness	.28*	ns	.29**	ns	.39**	ns	.36**	ns	ns	ns	ns	ns	ns	ns
Support	ns	.35**	ns	ns	ns	ns	ns	.29*	ns	-.26*	ns	ns	ns	-.28*
Endorsement	.37**	ns	ns	ns	ns	ns	.33*	ns	ns	ns	ns	ns	ns	ns
Undermining	ns	ns	ns	ns	ns	ns	ns	ns	ns	.33*	.35**	.36**	ns	.37**
Conflict	ns	ns	ns	ns	ns	-.30*	ns	ns	ns	.35**	ns	.41**	ns	.40**

Note. M = Mothers ( $n = 61$ ), F = Fathers ( $n = 56$ ); CRS-BR-Total: Total score on the coparenting instrument

\*  $p < .05$ ; \*\*  $p < .01$ ; ns = non-statistically significant correlation

## Discussion

### Internal structure of the CRS-BR

Confirmatory factor analysis showed that the same six factors confirmed by Feinberg et al. (2012) with US parents were confirmed for their Brazilian parents. As in the North-American sample, the “Division of Labor” dimension had low reliability in the Brazilian sample and was omitted from later analyses (Kan & Feinberg, 2015). This factor also presented problems in the factor analysis conducted with a sample of Portuguese mothers, and was excluded from the final structure of the adapted version in Portugal (Lamela et al., 2018).

Despite excluding this factor from the instrument's factor structure, we highlight the importance of coparenting relationship challenges that involve division of labor issues, and suggest for this factor to be maintained, considering the impact of the problems caused by dissatisfactions with the division of labor, especially between partners with young children. However, existing items will need to be reformulated and new items

created and tested to improve the validity and reliability of this subscale. Additionally, the problems presented for this factor (Division of Labor) may reflect the difficulties in capturing some of the cultural nuances that can affect this dimension of the coparenting relationship, such as workplace policies and flexibility for mothers versus fathers, which can limit the scope of negotiations related to division of tasks, thus reinforcing the importance of reviewing this factor.

Our confirmation of the US coparenting factor structure in a Brazilian sample points to the possibility of articulating data at an international level on how to promote good quality coparenting relationships. Moreover, using a common instrument will facilitate cross-cultural comparisons, enabling researchers to identify similarities and differences in coparenting behaviors exhibited by parents from different countries and to examine how these differences may affect family functioning.

Results indicating invariance of the CRS-BR regarding gender suggest that mothers and fathers share a highly similar understanding of coparenting

behaviors. When studies are conducted using the CRS-BR to compare maternal and paternal coparenting attitudes in specific situations, any discrepancies should be attributed to actual differences in the coparental behavior evaluated and not to inherent gender bias of the instrument itself (Damásio, 2013). Together with the confirmatory factor analysis results, evidence of gender invariance adds to the validity evidence for the CRS-BR based on its internal structure.

## Reliability

Reliability evidence for each coparenting subscale indicates that the content of each factor item seems to have a common focus. Alpha values for the present sample (.66 to .88) were similar to those for the US sample (.66 to .94 for mothers and .61 to .93 for fathers) (Feinberg et al., 2012) and to values in a sample of Portuguese mothers (between .70 and .94) (Lamela et al., 2018). Moreover, Revelle and Zinbarg (2009) state that omega values greater than .60, together with similar omega and alpha values, indicate an instrument with good reliability. When considering the average variance extracted, only the value for the “coparenting closeness” dimension was slightly lower than expected, suggesting that the items in this factor present a higher percentage of error than the variance explained by the factorial structure. Thus, these items should be analyzed qualitatively to identify possible problems. As the other reliability indexes for this factor were above the cut-off values, it can be considered reliable.

## External validity

**Discriminant validity.** Results of the correlations between CRS-BR and the instrument of social desirability indicate that fathers show concern with external evaluations regarding difficulties within the coparenting relationship (conflicts and undermining). Fathers seem to downplay negative coparenting interactions, indicating a possible response bias that would lead to underreporting of coparenting problems. Items evaluating conflicts describe difficulties involving both partners, but the questions related to undermining ask the respondents to describe their partner's behaviors towards them. Thus, fathers seem to avoid reporting that mothers sabotage their role as fathers.

As for mothers, however, the absence of statistically significant correlations between scores on the coparenting instrument and social desirability indicate

that most mothers are willing to share their positive and their negative coparenting experiences. In this regard, mothers seem more comfortable than fathers in reporting their perceived difficulties with their partner, in a coparenting relationship.

Notably, most correlations, both for mothers and fathers, were not significant, indicating evidence of discriminant validity for the CRS-BR. Very low correlations between the CRS-BR subscale scores and a measure of social desirability provide important evidence for using this self-report instrument, as it indicates that the information obtained with this measure tends to be accurate.

**Associations with related constructs.** Results of the correlations between the CRS-BR and three indicators of preschoolers' prosocial behaviors indicate a relation between the perceptions of parents regarding the quality of the interactions established with their partners and concerning their child's positive social behaviors. Correlation coefficients were within the expected interval (absolute values between .20 and .50), corroborating data from previous studies which also found positive relations between positive coparenting (or its dimensions) and positive indicators of child adjustment like self-regulation (Kim & Teti, 2014), global mental health, self-esteem, and academic performance (Lamela & Figueiredo, 2016).

As for the associations between coparenting and their child's problem behaviors, the coefficients of all significant correlations were also within the expected interval (.20 to .50). These findings align with the results of Faria (2015), indicating that scores on the coparenting undermining subscale were positively correlated with the child's emotional problems (internalizing behaviors). Additionally, findings from both international (Murphy et al., 2016; Schoppe et al., 2001) and Brazilian (Mosmann et al., 2017) studies indicated that higher scores on coparenting undermining, conflict, and competition were predictors of children with greater externalizing behavior problems. The results of these studies also showed that more positive coparenting behaviors (e.g., agreement, support, and endorsement), were related to fewer internalizing and externalizing behaviors by the children (Faria, 2015; Mosmann et al., 2017; Schoppe et al., 2001), as also found in our study. In other words, the findings point to a relationship between the perception of mothers (reporting on fathers) and, especially, fathers (reporting on mothers) about the quality of the coparenting relationship

established with their partners and the problematic behaviors presented by their children.

Importantly, although some of the studies mentioned were conducted with parents of children in an age bracket similar to the age range of the children in this study (e.g., parents and their first-born child observed at 24 months and 7 years of age, parents of preschool children), others investigated samples that were less similar (e.g., single mothers of infants aged 6 to 9 months; parents with children under the age of 18). This indicates that the associations between coparenting and other family context-related variables appear to be consistent for both mothers and fathers, from children's infancy to adolescence.

Unexpectedly, however, most of the correlations with child behavior (both prosocial and problematic) were not significant in this study. A possible explanation would be the underrepresentation of some parent profiles. Compared with the composition of the general population of Brazilian parents, divorced or low-income parents were underrepresented in the study sample, for example. This may have contributed to study participants not varying greatly on the coparenting score, leading to a truncation of variance problem which reduces the probability of finding significant correlations even if they actually exist. Thus, researchers must find ways to recruit parents with greater coparenting relationship difficulties.

## Conclusions

The coparenting relationship plays a central role in family interactions. Over time, this relationship guides activities and parental decisions made while raising children which affects the physical and mental health of all family members. We therefore need valid procedures to assess the quality of this relationship which can be used to evaluate initiatives to promote healthy coparenting relationships in the Brazilian context, and to study factors that affect or are affected by coparenting using a measure that enables integrating research findings at an international level.

However, few studies provide psychometric evidence for instruments that assess coparenting in Brazil. The present study expands information on this important but still little explored construct by presenting reliability and validity evidence (based on internal structure validation and correlations with other measures) for the *Escala da Relação Coparental*. Results produced adequate evidence to support the

use of this instrument in Brazil with parents of children up to six years of age.

Regarding the internal structure of the CRS-BR, the confirmation of a six-factor structure similar to the original US instrument together with the configural, metric, and scalar invariance of this structure in relation to the parents' gender confirm the underlying theoretical coparenting model and indicate that comparisons between mothers and fathers and between parents from different cultures is feasible. Additionally, adequate to good reliability evidence was found for the six factors maintained after CFA.

As for external validity evidence, some of the expected correlations were found. Weak correlations with social desirability scores established the evidence discriminant validity. Partial validity evidence emerged based on correlations with a measure to assess parents' perceptions of child adjustment. However, a more representative sample is required to reevaluate the external validity of the CRS-BR, as well as improvement of the "Division of Labor" factor.

Finally, the psychometric evidence presented here refers to a sample of Brazilian mothers and fathers with high level of education (considering the Brazilian context), low marital dissolution level, and with children up to 6 years old. For the CRS-BR to be used with a wider range of Brazilian parents, further studies on the instrument's psychometric properties should include, for example, parents with other educational backgrounds, who are separated or divorced, and who have children in other age groups. Other studies could also test additional types of validity evidence for the CRS-BR such as criterion validity, experimental studies, and an analysis of testing consequences.

Given the importance of the coparenting relationship for family functioning, reflecting on the implications for professional practice in psychology is also important. Having an instrument to assess coparenting in the Brazilian context with satisfactory evidence of validity and reliability may help to identify parents who experience difficulties in interacting with their partners. Struggling parents could benefit from intervention programs focused on strengthening their communication and problem-solving skills related to child rearing, the effectiveness of which can be evaluated by the CRS-BR.

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