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ORIGINAL PAPER

Prenatal Version of the Coparenting Relationship Scale Among Finnish Couples Expecting Their Firstborn

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Abstract

Although coparenting has been widely studied, research on what expectant couples think about their future coparenting is limited. Our aim was to examine the psychometric properties of the Prenatal Version of Coparenting Relationship Scale among Finnish couples expecting their first child. We were also interested in the associations between couples' expectations of coparenting and couple relationship quality. Expectants and partners ($N = 157$ Finnish couples expecting their first child; 156 in a heterosexual and 1 in a same-sex relationship) individually completed the questionnaires 1–3 months before childbirth. We used Exploratory Factor Analysis and Exploratory Structural Equation Modeling. The results showed that both expectants' and partners' expectations of coparenting were very positive. Two dimensions, *Expectations of cooperative coparenting* and *Expectations of coparenting conflict*, were found for both expectants and partners, and both dimensions were largely invariant across spouses. The two dimensions were associated with each other. Expectations of cooperative coparenting were positively associated with prenatal couple relationship quality in both expectants and partners, thus confirming concurrent validity between these measures. Support for the discriminant validity of coparenting conflict in relation to couple relationship quality was found for both spouses whereas the discriminant validity of cooperative coparenting was confirmed for partners only. Our results indicate preliminary support for the validity and reliability of the Finnish version of the Coparenting Relationship Scale—Couples' Prenatal Version (CRS-CPV) for assessing coparenting expectations, especially among heterosexual couples.

Keywords Coparenting · Couples · Prenatal expectations · Relationship quality · Transition to parenthood

Highlights

- Couples' expectations of coparenting were highly positive.
- Expectations comprised two dimensions, namely *Expectations of cooperative coparenting* and *Expectations of coparenting conflict*.
- Couples' expectations of coparenting were associated with their prenatal relationship quality.
- Preliminary support was found for the validity and reliability of the Finnish version of the CRS-CPV instrument.

Introduction

The transition to parenthood, a period that typically begins during pregnancy and ends some months after the birth of the first child (Adamsons, 2013), is both a joyful and stressful time for new parents (Doss & Rhoades, 2017). Although the transition to parenthood is a normative life transition, it can be a difficult phase for some, since it often entails changes in relationship satisfaction, the division of household labor, and individuals' mental health and social relationships (Glade et al., 2005). For example, after the baby's birth, parents tend to become more traditional in their attitudes and behavior (Katz-Wise et al., 2010) and relationship satisfaction deteriorates on average in both women and men (Lawrence et al., 2007).

One big change brought by the transition to parenthood is the couple's need to build a coparenting relationship to

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deal with issues relating to their new roles as parents. Coparenting refers to the ways in which parents work together as parents (Feinberg, 2002). According to Kuersten-Hogan (2017), coparenting comprises both cognitive and behavioral aspects. The cognitive aspect refers to the prenatal and postnatal mental representations of coparenting, including perceptions, ideas, beliefs, and expectations. The behavioral aspect of coparenting refers to the way parents behave as co-parents. Coparenting, one of the family subsystems (Minuchin, 1985), has proved to be a crucial factor in parenting and child wellbeing. It is related to parents' own parenting in that the parenting practices of mothers and fathers who have a stronger coparental alliance are also more effective (Morrill et al., 2010). Moreover, coparenting is important for child wellbeing, as it is known to predict change in child adjustment (Teubert & Pinquart, 2010). Coparenting also mediates the influence of relationship satisfaction on child adjustment (Camisasca et al. 2019). In this study, we focused on the cognitive aspect of coparenting as we were interested in the coparenting expectations of couples expecting their first child.

Dimensions of Coparenting

While researchers agree that coparenting is a multidimensional construct, they have diverse views about the number and content of these dimensions. According to Feinberg (2003), coparenting comprises four dimensions: childrearing agreement, supporting or undermining one's partner's parenting, division of labor, and joint family management. Childrearing agreement refers to parents' agreement on child-related issues, such as behavioral expectations and a child's emotional needs. Supporting (e.g., affirmation of the other's competence as a parent) or undermining (e.g., through criticism) one's partner's parenting refers to the parents' supportiveness of each other. Division of labor refers to how the duties and tasks involved in both childcare and the household are shared, and joint family management includes parents' control over their own behavior and their communications with each other, managing the boundaries of family relationships, and balancing the interaction between parents and children. Later, Feinberg et al. (2012) added a fifth dimension, parenting-based closeness. This dimension refers for example to the experience of the spouses working together as a team and witnessing their development as a parent.

Other scholars have theorized a somewhat different structure of coparenting. For example, Margolin and co-authors (2001) identify only three dimensions in coparenting: cooperation, conflict, and triangulation. Van Egeren and Hawkins (2004), in turn, identify four dimensions: coparenting solidarity, coparenting support, undermining coparenting, and shared parenting. Although scholars disagree on the number and content of the dimensions of coparenting, all three of the above definitions highlight the importance of mutual support, fairness in the division of parenting responsibilities, and low levels of undermining and conflict.

Prenatal Coparenting

Pregnancy is an important time for the development of coparenting, as it activates both the cognitive and behavioral aspects of coparenting (Kuersten-Hogan, 2017). Future parents can discuss and form expectations on issues central to coparenting. However, such prenatal coparenting expectations can be unrealistic, as shown by Biehle and Mickelson (2012). They found that women were reported by men as doing more childcare than the men had expected during pregnancy while men were reported by women as doing less childcare and play than the women had expected during pregnancy. Conversely, previous studies have also shown that prenatal coparenting predicts postpartum coparenting in that couples' harmonious prenatal representations of future coparenting are associated with their harmonious postpartum representations of coparenting (Kuersten-Hogan, 2017). Observational studies have also indicated that couples with a higher quality of prenatal coparenting behavior also show more supportive and less undermining coparenting behavior after childbirth (Altenburger et al., 2014). In addition, it has been shown that prenatal coparenting expectations predict postnatal coparenting behavior: the more negative the prenatal expectations of coparenting, the weaker the postnatal coparenting (McHale et al., 2004; McHale & Rotman, 2007).

Measuring Coparenting

Because of the growing interest in coparenting, many measures have been developed for its assessment. According to the review by Mollá Cusí et al. (2020), most such measures (e.g., CRS; Feinberg et al., 2012) are intended for postpartum coparenting, while a few others (e.g., ECS; Beckmeyer et al., 2017) target coparenting among divorced parents. Self-report questionnaires (e.g., CRS; Feinberg et al., 2012) are the commonest type, although a few observational instruments are also available (e.g., LTP; Carneiro et al., 2006). Measures differ in the dimensions (e.g., CQ; Margolin et al., 2001 for cooperation, conflict, and triangulation) of coparenting they examine and in the age of the children (e.g., 3–18 yrs. in the ECS; Beckmeyer et al., 2017) of the parents targeted by the measure. To our

best knowledge, only two coparenting measures concern prenatal coparenting. One of these, the Prenatal Lausanne Trilogue Play (Carneiro et al., 2006), is an observational tool. The other, a self-report questionnaire, is the Coparenting Relationship Scale-Father's Prenatal Version (CRS-FPV; Pinto et al., 2018). The CRS-FPV scale is based on the Coparenting Relationship Scale (CRS) developed by Feinberg et al. (2012). The CRS is 35-item measure validated for couples who already have a child, whereas the CRS-FPV was developed to study future fathers' coparenting expectations in Portugal during the first trimester of pregnancy (Pinto et al., 2018; Pinto & Figueiredo, 2019). A coparenting measure on prospective coparenting for individuals who are in a committed relationship but not yet pregnant has also been developed (Leal et al., 2022). This scale is based on the abovementioned prenatal coparenting scale of Pinto et al. However, Leal et al. (2022) studied individuals who identify themselves either as sexual minorities or heterosexuals and added new items on social support from the family of origin for both groups and new items on social stigma for individuals who identify themselves as sexual minorities only. Thus far, this is the only coparenting measure that has also been adapted for individuals who identify themselves as sexual minorities (Leal et al., 2022).

To our knowledge, the CRS-FPV scale has not previously been used to study couples expecting a child. However, when examining prenatal expectations of coparenting, it would be utmost important to study couples' expectations, as according to the family systems theory (Minuchin, 1985), the family consists of subsystems (e.g., the parent-child subsystem), meaning that the members of family are non-independent. On this view, coparenting, which involves both parents and the child, can be seen as one such subsystem. If coparenting expectations are examined from the viewpoint of only one or other parent, the results will yield a very one-sided understanding of the phenomenon. Therefore, in this study, we focused on the views of couples expecting their first child (both expectants and their partners) and assessed their expectations of coparenting using the CRS-FPV scale. To study dyadic processes and inter-spousal differences in coparenting, to draw credible inferences from the results, and to enable replicability of the findings, it is essential to ensure that the same construct has been assessed and analyzed in both spouses (Sakaluk et al., 2021). From a statistical standpoint, examining couples means testing for dyadic measurement invariance. However, as Sakaluk et al. (2021) state, dyadic measurement invariance has been little tested in relationship research. Therefore, we wished to investigate interdependence between spouses and test the measurement invariance of the factor structure of the CRS-FPV between spouses.

Coparenting and Couples' Relationship Quality

Previous research suggests that couple relationship quality and coparenting are positively associated and, according to Morrill et al. (2010), may be reciprocal: relationship quality may predict coparenting quality or vice versa. In their longitudinal study, Christopher et al. (2015) found that a decline in fathers' relationship quality predicted higher competitive coparenting whereas an increase in fathers' relationship conflict predicted lower cooperative coparenting. In addition, an increase in mothers' relationship conflict predicted lower support of fathers' parenting. Durtschi and co-authors (2017) in turn found that supportive coparenting predicted both mothers' and fathers' assessments of the couple's relationship quality. They also noticed that mothers' perception of supportive coparenting from fathers predicted fathers' relationship quality, whereas fathers' perception of supportive coparenting from mothers did not predict mothers' relationship quality.

Coparenting and relationship quality are also linked during pregnancy. According to McHale et al. (2004), fewer concerns reported by both future mothers and fathers about potential difficulties in future coparenting were related to higher relationship quality during pregnancy. Research has also shown that expectant couples' unmet expectations are related to relationship quality. According to Biehle and Mickelson (2012), women experienced unmet expectations when men performed less childcare than the women had expected, and men experienced overmet expectations when women engaged in more child play than the men had expected. The women's unmet and men's overmet expectations were related to lower relationship satisfaction in both women and men. In addition, men experienced overmet expectations when women performed more childcare than the men had expected. The men's overmet expectations were related to higher relationship satisfaction in men.

The Finnish Context

The study was conducted in Finland, a welfare state characterized by an emphasis on gender equality, generous parental leave, and the "dual breadwinner/external childcare model" (Pfau-Effinger, 2005). Despite the availability of generous parental leave for both partners, most parental leave days are taken-up by mothers (Social Insurance Institution of Finland, 2021). In addition, while women continue to do most of the housework, the division of labor between women and men has slowly become more equal as reported for example by Miettinen and Rotkirch (2012), who found that fathers of young children participate in childcare almost as much as mothers.

Finland offers new parents several services relevant for the development of coparenting, such as the high availability and coverage of free maternity and child health clinics organized on the municipal level. Birth register data show that the proportion of parents not using maternity clinic services is only 0.2–0.3% and that the coverage of child health clinic services is approximately 99.6 percent (Finnish Institute for Health and Welfare, 2021). The Ministry of Social Affairs and Health (2017) has emphasized that both parents should be treated equally in maternity and child health clinics in Finland. However, during the coronavirus pandemic (when our data were collected), non-birth parents' participation in maternity health clinics and child births was at times restricted in different parts of Finland (Klemetti et al., 2020).

The Present Study

The main aim of this study was to examine the psychometric characteristics of the Finnish Version of the Coparenting Relationship Scale-Father's Prenatal Version (CRS-FPV) across spouses expecting their first child, focusing on finding a similar factor structure for both expectants and their partners and the internal consistency and concurrent and discriminant validity of the sub-scales identified in relation to couple relationship quality. Based on previous research on the CRS-FPV (Pinto et al., 2018), we expected coparenting expectations to consist of four factors, i.e., lack of coparenting support, coparenting conflict, coparenting disagreement, and coparenting undermining (Hypothesis 1a). These factors were expected to be similar across spouses (Hypothesis 1b). Additionally, based on the findings of Feinberg et al. (2012), we expected expectants' and their partners' dimensions of coparenting expectations to be weakly associated with each (Hypothesis 1c). Finally, based on previous findings (Feinberg, 2003; McHale et al., 2004), we assumed that sub-scales of prenatal expectations of a well-functioning coparenting relationship would be associated with higher prenatal couple relationship quality, but these sub-scales would not share too much variance with prenatal couple relationship quality, thus demonstrating sufficient concurrent and discriminant validity (Hypothesis 2).

According to Feinberg's (2003) ecological model, the coparenting relationship may be influenced by individual, family, and extra-familial factors. Education, as a key indicator of socioeconomic status, has previously been shown to be associated with coparenting perceptions (Van Egeren, 2003). Moreover, the length of the participants' couple relationship will likely vary. Therefore, we chose to control for length of the couple relationship and level of education in the analyses related to the second research question.

Method

Procedure and Participants

Data were gathered as part of an ongoing longitudinal research project "Learning to coparent: A longitudinal cross-national study on construction of coparenting in transition to parenthood (CopaGloba)" conducted by an international consortium led by University of Jyväskylä and JAMK University of Applied Sciences in Finland. The project, which includes longitudinal survey and interview data on Finnish, Japanese and Portuguese parents, and longitudinal mobile diary data on Finnish parents, is expected to contribute new knowledge on the construction of coparenting in an early stage of parenting. The project has been approved by the ethical committee of University of Jyväskylä.

The study reported here utilizes cross-sectional data gathered in Finland via an online survey in 2020–2021. The survey was targeted to expecting couples in the third trimester of pregnancy (due date May 2020–February 2021). Other inclusion criteria were that the participants had to be in a romantic relationship, the child had to be the firstborn for both spouses, and participants had to be able to complete the survey in Finnish. We used two recruitment strategies. Our primary aim was to recruit participants through maternity clinics in four of Finland's ten major cities (119 984–292 796 inhabitants; OSF, 2020). However, owing to the COVID-19 pandemic, the maternity clinics were not holding family classes and we were unable locate enough couples expecting their first child. This meant recruiting participants through social media (e.g., targeted advertising). The participants (46 couples) recruited through the maternity clinics also participated in the interviews whereas the couples recruited via other sources did not. Expectants and partners independently and anonymously filled in identical questionnaires. However, to enable matching, spouses' questionnaires were code numbered.

The final sample comprised 157 Finnish couples ($N = 302$ participants). One further dyad registered for our study but was excluded as they were not in a romantic relationship. Of the participating couples, both spouses in 145 couples and just one spouse in 12 couples (11 expectants and one partner) responded to the questionnaire. Of the 145 couples, 144 were heterosexual and one was a same-sex couple. Of the 302 participants, 156 were expectants and 146 were partners. The mean age of expectants was 29.8 years ($SD = 4.0$, range: 20–44) and that of partners 31.3 years ($SD = 4.4$, range: 20–53), and thus closely corresponded to the average age of those who became mothers (29.7 years) and fathers (31.6 years) for the first time in Finland in 2020 (OSF, 2021a). On average, the couples had been together for 6.2 years ($SD = 3.8$, range: 1–16). Of the

participants, 55 percent were married or in a registered partnership, and 45 percent were cohabiting. The 55 percent couples who were married or in a registered partnership was thus higher than the 43 percent in the Finnish first-time parents' general population in 2020. (OSF, 2021b). No official statistics exist on the number of cohabiting couples who have had their first child, but most children born outside marriage in Finland are born to cohabiting parents (OSF, 2021b). With respect to education, 82.1 percent of the expectants and 67.8 percent of their partners had a bachelor's degree or higher. These proportions are higher than the corresponding proportions of Finnish first-time mothers (46.1%) and first-time fathers (38.0%) in the general population in 2020 (OSF, 2021c).

Because the data were collected during the COVID-19 pandemic, we asked the participants for their perceptions of its effects on their couple relationship and expectations of coparenting. Slightly over a half of the participants (55%) felt that their couple relationship had not been affected by the pandemic. The remainder felt that the pandemic had affected their couple relationship: positively in most cases (27.3% of all participants), negatively in a few cases (3.3%), and both positively and negatively in the remainder (14.3%). In addition, most participants (89.6%) felt that the pandemic had not affected their expectations of coparenting. Of those who felt that the pandemic had affected their expectations of coparenting, 6 percent reported a positive effect, 2 percent a negative effect, and 2.3 percent both a positive and negative effect. Thus, most participants felt that the coronavirus pandemic had not affected their couple relationship or expectations of coparenting.

Measures

Prenatal Expectations of Coparenting

The prenatal expectations of coparenting scale comprised 30 items (see Table 1) adapted from the Coparenting Relationship Scale-Father´s Prenatal Version (CRS-FPV; Pinto et al., 2018). We prefaced all items with the words "I believe" as the future tense does not exist in Finnish. The response scale ranged from 1 (*not true of us*) to 7 (*very true of us*). In addition to the original study on the construction of the scale by Pinto et al. (2018) among fathers at the first trimester of pregnancy, the scale has been used only in one other study (Pinto & Fiqueiredo, 2019). According to Pinto et al. (2018), in a different-sex relationship, fathers' expectations of coparenting consist of four dimensions: lack of coparenting support (15 items: 1–4, 6, 9, 13, 16, 17, 20–25), coparenting conflict (5 items: 26–30), coparenting disagreement (6 items: 5, 8, 10–12, 14) and coparenting undermining (4 items: 7, 15, 18, 19). Because no Finnish version of the CRS-FPV was available, the 30 items were translated by a certified translator, and a backtranslation was made. The project team also included native Portuguese-speaking researchers who helped in the translation process.

Table 1 The Coparenting Relationship Scale – Father's Prenatal Version (CRS-FPV)

I believe…
1. My partner will be a good parent.
2. My relationship with my partner will be stronger after we have the child.
3. My partner will ask my opinion on issues related to parenting.
4. My partner will pay a great deal of attention to our child.
5. My partner will play with our child and leave the dirty work to me.
6. My partner and I will have the same goals for our child.
7. It will be easier and more fun to play with the child alone than when my partner is also present.
8. My partner and I will have different ideas about how to raise our child.
9. My partner will tell me I am doing a good job or otherwise let me know I am being a good parent.
10. My partner and I will have different ideas regarding our child's eating, sleeping, and other routines.
11. My partner will sometimes make jokes or sarcastic comments about the way I am as a parent.
12. My partner will not trust my abilities as a parent.
13. My partner will be sensitive to our child's feelings and needs.
14. My partner and I will have different standards for our child's behavior.
15. My partner will try to show that she or he is better than me at caring for our child.
16. My partner will have a lot of patience with our child.
17. We will often discuss the best way to meet our child's needs.
18. When all three of us are together, my partner sometimes will compete with me for our child's attention.
19. My partner will undermine my parenting.
20. My partner will be willing to make personal sacrifices to help take care of our child.
21. We will grow and mature together through experiences as parents.
22. My partner will appreciate my efforts at being a good parent.
23. When I feel I am at my wits end as a parent, my partner will give me the extra support I need.
24. My partner will make me feel that I'm best possible parent for our child.
25. Parenting will give us a focus for the future.
26. I will sometimes find myself having a mildly tense or sarcastic interchange with my partner.
27. My partner and I will argue about our child, in the child's presence.
28. My partner and I will argue about our relationship or marital issues unrelated to our child, in the child's presence.
29. Sometimes one or both of us will say cruel or hurtful things to each other in front of the child.
30. We will yell at each other within earshot of the child.

Response scale: 1 = Not true of us, 7 = Very true of us

In addition, we piloted the scale to ensure that the items would work in Finland.

Quality of the Couple Relationship

Participants' relationship quality was assessed by the Quality of Marriage Index (Norton, 1983). The original measure included the words "spouse" and "marriage". As the data collection was not limited to heterosexual couples and cohabitation is common in Finland, we changed the words to "partner" and "relationship". The QMI contains 6 items. The response scale of the first five items (e.g., "My relationship with my partner is very stable.") ranged from 1 (*strongly disagree*) to 7 (*strongly agree*). The response scale of the sixth item ("The degree of happiness, everything considered, in your relationship") ranged from 1 (*extremely low*) to 10 (*extremely high*). The items were translated by a certified translator. A total score was computed by standardizing each item and then taking a mean score of the items. The reliabilities were 0.92 for both spouses.

Control Variables

Control variables included participants' level of education and length of the relationship in years. *Level of education* was asked with the question "What is your highest qualification?". The response options were as follows: (1) No vocational qualification; (2) Upper secondary level education; (3) Lower tertiary education (i.e., BA level); (4) Upper tertiary education (i.e., MA level). Responses were recoded into two categories: 0 = other (options 1–2), 1 = tertiary qualification (options 3–4).

Data Analysis

First, we examined the factor structure of the original 30 items of coparenting expectations among couples. As our aim was to find a structure that similarly captured coparenting in both expectants and partners, we conducted the analysis in three steps. First, we explored the number of coparenting expectation factors and the items that reflected these factors separately for expectants and partners via exploratory factor analysis (EFA; Fabrigar & Wegener, 2011). Since the factor structure of the expectations of coparenting scale has previously been established only by Pinto et al. (2018), and moreover was based on a sample of men in a country context different from our own, we chose EFA as the method of data analysis. EFA allowed us to examine the dimensions of coparenting expectations for both expectants and partners without having to restrict ourselves to any firm hypotheses about the number of dimensions of coparenting expectations or about how the items would reflect the potential dimensions in both expectants and their partners. We used Geomin (with default epsilon = 0.50) as the rotation method as it allowed correlations between the coparenting dimensions.

As recommended in a recent review by Goretzko et al., (2021), several criteria were used in combination to identify possible factor structures: goodness-of-fit indices (described in more detail later in this section), parallel analysis (Horn, 1965), an adequate number of items per factor (i.e., at least three; Fabrigar & Wegener, 2011), and the interpretability of the solutions and their consistency with theoretical predictions. After deciding on the final factor structure, we assessed the reliability of the dimensions by computing McDonald's omega reliability for each factor separately (McDonald, 1999).

In the second phase of the analysis, we investigated the equivalence between expectants and partners of the structure of coparenting expectations obtained in the first phase (i.e., measurement invariance). For this purpose, we used exploratory structural equation modeling (ESEM; Marsh et al., 2009), as this allowed our EFA measurement model of coparenting expectations to be further examined within a SEM framework. In line with the suggestions by Sakaluk et al. (2021) on how to test measurement invariance using couple data, the following steps were taken: (i) configural invariance (i.e., a similar pattern of factor loadings and number of factors was specified across expectants and partners); (ii) weak invariance (i.e., the previous step plus factor loadings constrained to be equal across expectants and partners); (iii) strong invariance (i.e., item intercepts constrained to be equal in addition to previous constraints); (iv) strict invariance (i.e., residual variances constrained to be equal). The models were evaluated successively so that for each step of interest, the preceding step served as a reference. Moreover, to take interdependence in the spouses' responses into account, we modeled the data at the couple level (i.e., the couple as the unit of analysis) (Kenny, 2011) and correlated the error terms of the expectation items (Sakaluk et al., 2021). In the third phase of the analysis, based on the inter- and intra-spousal correlations estimated via the aforementioned ESEM model, we investigated the links between expectants' and their partners' dimensions of coparenting expectations.

Finally, also applying ESEM, we examined expectants' and their partners' dimensions of coparenting expectations in relation to couple relationship quality. Relationship length and level of education were controlled for. Both expectants' and partners' individual assessments of their relationship quality and the length of their relationship were correlated with both expectants' and partners' dimensions of coparenting. Moreover, expectants' and partners' level of education was correlated with the dimensions of their individual coparenting expectations. In addition to domain knowledge, these correlations also provided information on

the concurrent validity of the subscales of coparenting expectations in relation to couple relationship quality. The discriminant validity of the subscales of coparenting expectations in relation to couple relationship quality was assessed using the Fornell–Larcker method (Fornell & Larcker, 1981). Thus, we compared, the average variance extracted (AVE) of each dimension of coparenting expectations against the variance it shares with couple relationship quality (i.e., the squared correlation). The AVE is the average amount of variance that a given dimension of coparenting expectations accounts for in the observed variables associated with it. The AVE is computed as an average of the squared loadings of the variables that are associated with the dimension of interest. If the shared variance is smaller than the AVE, then discriminant validity is confirmed.

All the EFA and ESEM analyses were conducted using Mplus version 8.6 (Muthén & Muthén, 1998–2017). As the participants recruited via maternal clinics did not differ from those recruited via social media in the examined variables (i.e., coparenting expectations, level of education, and relationship length; all p values > 0.05), we analyzed them together. As the data were not normally distributed, we used a maximum likelihood estimator (MLR). Missing data for spouses who did not answer the questionnaire ($N = 12$) were accounted for by using full-information-maximum-likelihood procedure (FIML; Enders, 2010). To evaluate the model fit of all the estimated models, we used the chi-square (χ^2), Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) tests. The significance value of the χ^2 test should be greater than 0.05. It is accepted that values smaller than 0.08 for both the RMSEA and SRMR indicate a reasonable fit to the data (Hu & Bentler, 1999). Values greater than 0.90 indicate an acceptable fit to the data for both the CFI and TLI. In comparing the models at each step of the invariance test, we used the χ^2 difference test (Satorra & Bentler, 2001) and change (Δ) in the RMSEA, CFI, and TLI (Chen, 2007; Cheung & Rensvold, 2002). ΔRMSEA ≤ 0.015, ΔCFI ≤ 0.01 and ΔTLI ≤ 0.01 indicates that the null hypothesis of invariance should not be rejected. However, it should be noted that these cut-offs have been established for the traditional confirmatory factor analysis (CFA)/SEM framework (Marsh et al., 2009), and research on their applicability in the EFA/ESEM framework is lacking (Arens & Morin, 2016). ESEM scholars (e.g., Marsh et al., 2009) have suggested that fit indices which include a correction for parsimony (i.e., TLI and RMSEA) may be particularly important in ESEM, given that the number of estimated parameters is much larger than in traditional CFA/SEM. Hence, in line with these suggestions (e.g., Marsh et al., 2009; Arens & Morin, 2016), we used these criteria only as rough guidelines for facilitating model evaluation and, at the same time, considered the theoretical adequacy of the model for determining the fit of our ESEM models.

Results

Descriptive statistics for the coparenting items are presented in Table 2. On average, both expectants' and partners' expectations of coparenting were highly positive and showed little variation, meaning that the participants' experiences were similar, that is, highly positive.

Structure of the Prenatal Version of Coparenting Relationship Scale

First, we examined the factor structure of the CRS-FPV scale. Our specific focus was to find a similar factor structure for both expectants and their partners. Initial screening of the items revealed that items 4 ("My partner will pay a great deal of attention to our child") and 19 ("My partner will undermine my parenting") showed no variation in either of the spouses: almost all the expectants and partners agreed with item 4 and disagreed with item 19. Therefore, we excluded these items from the further analyses.

Estimation of different EFA solutions with the remaining 28 items revealed that none of the factor solutions received clear support from the statistical criteria: the fit index values were far from adequate in both spouses for all solutions, the best emerging for the 4-factor solution (e.g., CFIs were around 0.80 and TLIs slightly under 0.80). Parallel analysis suggested two factors for expectants and three factors for partners. Inspection of the loading patterns of the various factor solutions revealed many problematic items, the most severe being item 11 ("My partner will sometimes make jokes or sarcastic comments about the way I am as a parent") which loaded differently between expectants and partners: for expectants, it seemed to reflect the same factor as items measuring conflict whereas among partners the item loaded on the same factor as items that theoretically measured disagreement or undermining. This suggests that the meaning of item 11 was completely different across spouses. Moreover, many items did not load properly (i.e., a loading <0.32) in either or both spouses: items 5, 7, 10, 12, 14, and 25 showed low loadings in expectants, items 8 and 15 did not load on any factor in partners, and item 18 ("When all three of us are together, my partner sometimes will compete with me for our child's attention") did not load properly on any factor in either expectants or partners. This means that these items did not measure the factor structure well in either or both spouses. In other words, these items were poorly related to the other expectation variables in the

Table 2 Means (*M*), standard deviations (*SD*) and Spearman correlations of the 30 items of CRS-FPV ($N = 157$ couples)

Items	1 *P*	2 *P*	3 *P*	4 *P*	5 *P*	6 *P*	7 *P*	8 *P*	9 *P*	10 *P*	11 *P*	12 *P*	13 *P*	14 *P*	15 *P*	16 *P*	17 *P*	18 *P*	19 *P*	20 *P*	21 *P*	22 *P*	23 *P*	24 *P*	25 *P*	26 *P*	27 *P*	28 *P*	29 *P*	30 *P*	$M_{Expectants}$	$SD_{Expectants}$
1*E*	0.24**	0.27**	0.22**	0.11	−0.10	0.19*	−0.04	−0.08	0.20*	−0.17*	−0.14	−0.15	0.29***	−0.09	−0.10	0.22**	0.16*	−0.01	−0.21*	0.11	0.18*	0.21*	0.13	0.19*	0.11	−0.05	−0.14	−0.13	−0.17*	−0.07	6.84	0.42
2*E*	0.32***	0.23**	0.19*	0.18*	−0.22**	0.27**	−0.06	−0.19*	0.33***	−0.18*	−0.27**	−0.17*	0.25**	−0.19*	−0.27**	0.32***	0.18*	−0.18*	−0.24**	0.16	0.16	0.12	0.26**	0.15	0.14	−0.26**	−0.20*	−0.36***	−0.30***	−0.23**	5.95	1.05
3*E*	0.16	0.07	0.09	0.04	−0.25**	0.35***	0.00	−0.18*	0.15	−0.19*	−0.23**	−0.16	0.17*	−0.15	−0.19*	0.18*	0.04	−0.16	−0.10	0.03	0.05	0.10	0.17*	0.13	0.02	−0.15	−0.09	−0.05	−0.01	−0.06	6.41	0.80
4*E*	0.28**	0.22**	0.30***	0.13	−0.13	0.29***	−0.16	−0.25**	0.24**	−0.31***	−0.19*	−0.21*	0.22**	−0.15	−0.17*	0.22**	0.24**	−0.11	−0.30***	0.08	0.22**	0.16*	0.16	0.14	0.15	−0.08	−0.24**	−0.27**	−0.19*	−0.22**	6.70	0.70
5*E*	−0.13	−0.02	−0.05	−0.07	0.12	−0.11	0.03	0.06	−0.19*	0.14	0.23**	0.12	−0.12	0.04	−0.03	−0.06	−0.10	−0.06	0.01	−0.02	−0.03	−0.13	0.01	−0.03	−0.04	0.10	−0.09	−0.11	−0.05	−0.06	2.44	1.44
6*E*	0.12	0.10	0.11	0.06	−0.07	0.17*	−0.16	−0.04	0.14	−0.08	−0.17*	−0.10	0.16	0.07	−0.07	0.05	0.10	0.02	−0.10	0.18*	0.11	0.10	0.04	0.16	0.12	0.03	−0.08	−0.02	−0.04	0.01	6.12	0.83
7*E*	−0.02	−0.04	0.02	0.11	0.09	−0.08	0.03	0.06	−0.06	−0.01	0.24**	0.02	0.04	0.05	0.06	0.03	0.10	0.01	−0.05	0.04	0.09	0.12	0.04	−0.03	0.12	0.14	−0.09	−0.04	−0.02	0.01	1.51	0.87
8*E*	−0.19*	−0.20*	−0.15	−0.18*	0.13	−0.22**	0.17*	0.32***	−0.36***	0.27**	0.11	0.04	−0.18*	0.15	0.12	−0.07	−0.11	0.07	0.04	−0.18*	−0.14	−0.12	−0.09	−0.22**	−0.07	−0.04	−0.01	0.01	−0.00	−0.04	2.26	0.89
9*E*	0.19*	0.20*	0.12	0.04	−0.26**	0.29***	−0.23**	−0.28**	0.27**	−0.35***	−0.23**	−0.06	0.23**	−0.23**	−0.18*	0.20*	0.14	−0.04	−0.14	0.26**	0.26**	0.25**	0.15	0.17*	0.13	−0.14	−0.06	−0.02	−0.10	−0.03	5.93	1.21
10*E*	−0.16	−0.17*	−0.04	−0.12	0.05	−0.15	0.18*	0.16*	−0.26**	0.24**	0.23**	0.13	−0.12	0.19*	0.11	−0.13	−0.08	0.10	0.16	−0.08	−0.15	−0.23**	−0.13	−0.29***	−0.10	0.15	0.00	−0.02	0.07	0.01	2.46	1.18
11*E*	−0.07	0.03	0.08	−0.08	0.03	−0.05	0.01	0.03	0.04	−0.03	0.10	−0.07	0.05	−0.02	0.08	0.16	0.11	−0.01	−0.01	0.16	0.11	0.05	0.11	−0.03	0.08	0.06	0.03	0.02	0.01	−0.05	3.93	1.97
12*E*	−0.14	0.03	0.06	−0.08	0.16	−0.08	−0.03	0.08	−0.07	0.05	0.26**	0.05	−0.10	0.08	0.15	−0.04	−0.05	0.07	0.12	−0.03	0.01	−0.04	0.02	−0.13	−0.04	0.16	0.01	0.11	0.06	0.07	1.65	1.55
13*E*	0.06	−0.01	0.12	−0.06	−0.14	0.16	−0.16	−0.19*	0.19*	−0.14	−0.16	−0.23**	0.12	−0.10	−0.23**	0.06	−0.03	−0.08	−0.14	0.03	0.05	0.07	0.08	0.09	0.03	−0.06	−0.01	−0.03	−0.14	−0.08	6.21	0.85
14*E*	−0.16	−0.08	−0.02	−0.12	0.15	−0.13	0.02	0.22**	−0.14	0.04	0.15	0.04	0.04	0.20*	0.11	−0.05	−0.02	0.05	−0.03	−0.04	−0.06	−0.06	−0.04	−0.14	0.04	0.04	−0.09	−0.09	0.04	−0.06	2.67	1.38
15*E*	−0.06	0.07	0.01	−0.03	0.24**	−0.13	0.07	0.05	−0.06	0.07	0.18*	0.15	−0.05	0.05	0.18*	−0.05	0.02	0.08	−0.01	−0.09	0.07	0.03	−0.01	−0.16	−0.04	0.11	0.05	0.09	0.12	0.11	1.26	0.58
16*E*	−0.03	0.05	0.09	0.03	−0.11	0.08	−0.20*	−0.16	0.07	−0.10	−0.14	−0.15	−0.02	−0.08	−0.25**	−0.07	0.01	−0.04	−0.06	0.08	0.08	−0.03	−0.03	0.14	−0.03	−0.03	0.04	0.01	−0.07	−0.08	6.09	1.07
17*E*	0.23**	0.11	0.13	0.05	−0.17*	0.11	−0.16	−0.12	0.19*	−0.06	−0.10	−0.17*	0.06	−0.02	−0.28**	0.09	0.03	−0.06	−0.04	0.04	0.03	−0.01	0.01	0.01	−0.05	−0.16*	−0.04	−0.06	−0.06	−0.04	6.10	1.12
18*E*	−0.05	0.08	0.04	0.00	0.08	−0.06	0.14	0.02	0.02	0.10	0.06	0.21*	−0.11	0.02	0.12	0.02	0.13	0.03	−0.00	0.04	0.06	0.00	0.05	−0.01	0.01	0.06	0.09	0.13	0.12	0.08	2.23	1.48
19*E*	−0.05	−0.07	−0.01	−0.07	0.11	−0.20*	0.04	0.07	0.00	0.08	0.13	0.09	−0.05	0.10	0.13	0.02	0.09	0.05	0.09	−0.11	−0.03	−0.04	0.04	−0.14	−0.01	0.05	−0.02	−0.02	0.03	0.05	1.11	0.33
20*E*	0.08	0.21*	0.12	0.10	−0.04	0.14	−0.07	−0.11	0.11	−0.05	−0.15	−0.08	−0.03	−0.03	−0.18*	0.17*	0.04	0.04	−0.14	0.09	0.03	−0.01	0.04	0.17*	0.08	−0.04	−0.00	0.01	−0.05	−0.01	5.98	1.21
21*E*	0.18*	0.11	0.09	0.07	−0.18*	0.11	−0.02	−0.06	0.12	−0.08	−0.10	−0.09	0.13	−0.06	−0.15	0.08	0.19*	−0.08	−0.14	0.16	0.15	0.20*	0.16*	0.15	−0.03	−0.01	0.06	0.04	0.03	0.05	6.76	0.61
22*E*	0.17*	0.05	0.07	0.03	−0.11	0.17*	0.05	−0.10	0.10	0.00	−0.08	−0.05	0.10	−0.00	−0.11	0.14	0.10	0.05	−0.04	0.04	−0.05	0.06	0.09	0.09	−0.05	0.05	−0.01	0.02	−0.02	0.02	6.67	0.61
23*E*	0.17*	0.19*	0.27**	0.16	−0.18*	0.32***	−0.21*	−0.19*	0.37***	−0.17*	−0.22**	−0.17*	0.20*	−0.22**	−0.24**	0.20*	0.14	−0.02	−0.15	0.17*	0.19*	0.15	0.14	0.21*	0.05	−0.12	−0.06	−0.13	−0.14	−0.11	6.35	1.08
24*E*	0.19*	0.18*	0.18*	0.09	−0.25**	0.32***	−0.11	−0.18*	0.25**	−0.15	−0.24**	−0.17*	0.26**	−0.15	−0.27**	0.21*	0.05	−0.08	−0.13	0.22**	0.17*	0.12	0.15	0.26**	0.11	−0.15	−0.09	−0.11	−0.06	−0.07	6.35	0.86
25*E*	0.17*	0.09	0.06	0.11	−0.03	0.21*	−0.06	−0.03	0.08	−0.13	−0.05	−0.07	0.18*	−0.05	−0.04	0.18*	0.14	−0.01	−0.16*	0.23**	0.14	0.14	0.16	0.18*	0.25**	−0.10	0.08	−0.05	−0.04	0.01	5.92	1.30
26*E*	−0.09	−0.08	−0.02	−0.02	0.04	−0.18*	0.03	0.19*	−0.09	0.09	0.05	0.05	−0.09	0.02	0.02	−0.05	−0.05	0.03	0.05	0.04	0.04	0.08	0.01	0.04	0.00	0.16	0.10	0.12	0.18*	0.16	4.96	1.75
27*E*	−0.09	−0.10	−0.07	−0.12	0.02	−0.26**	0.06	0.13	−0.14	0.12	0.06	0.17*	−0.11	0.13	0.04	−0.09	0.10	0.02	0.10	−0.01	0.02	−0.02	−0.07	−0.05	0.00	0.11	0.10	0.13	0.19*	0.14	2.05	1.22
28*E*	−0.03	−0.08	−0.13	−0.02	−0.05	−0.14	0.14	0.21*	−0.11	0.02	0.12	0.08	0.06	0.17*	0.08	−0.02	0.08	−0.08	0.04	0.06	0.01	0.00	−0.04	−0.02	0.11	0.21*	0.11	0.16	0.18*	0.25**	1.83	1.14
29*E*	−0.13	−0.09	−0.06	−0.12	0.04	−0.18*	0.12	0.17*	−0.13	0.11	0.04	0.09	−0.01	0.20*	0.02	0.08	0.05	0.06	0.08	−0.07	−0.02	0.01	−0.01	0.02	−0.01	0.18*	0.08	0.16	0.18*	0.22**	2.76	1.66
30*E*	−0.08	−0.04	−0.13	−0.06	−0.03	−0.19*	0.13	0.17*	−0.11	0.12	0.11	0.23**	−0.05	0.25**	0.10	−0.08	0.05	−0.02	0.07	0.10	0.02	0.02	−0.05	0.03	0.12	0.28**	0.13	0.12	0.14	0.21*	2.08	1.46
$M_{partners}$	6.77	6.12	6.35	6.83	2.45	6.05	2.07	2.38	6.12	2.60	4.28	2.10	6.50	2.69	2.05	5.30	6.01	2.28	1.36	6.08	6.64	6.65	6.56	6.50	5.99	4.78	2.05	1.88	2.16	1.75		
$SD_{partners}$	0.51	0.99	0.87	0.49	1.62	0.97	1.52	1.29	1.04	1.29	1.85	1.56	0.65	1.46	1.54	1.41	1.14	1.50	0.89	1.15	0.64	0.66	0.89	0.85	1.14	1.74	1.21	1.27	1.30	1.09		

E expectants, *P* partners

*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$. A 7-point response scale: 1 = Not true of us, 7 = Very true of us

EFA. Many of these items also cross-loaded (i.e., their meaning was not clear) in most of the estimated factor solutions. Theoretically, all these poorly loading items, except item 25, measured either disagreement or the undermining factor identified by Pinto et al. (2018). Item 25, in turn, measured the factor "Lack of support" identified and labeled by Pinto et al. Based on these considerations, we removed items 5, 7, 8, 10–12, 14, 15, 18, and 25 one by one from the further analyses. However, since we acknowledge that the order in which items are removed may affect the factor solutions to be found, we also tried different orders of removing the items. However, all these attempts produced a similar solution.

After these modifications, we re-estimated the EFA using the remaining 18 items. The 4-factor model received most support from the fit indices (e.g., CFIs and TLIs around 0.95) whereas parallel analysis supported two factors for each spouse. Theoretically, however, the 4-factor solution was not appropriate as it included several cross-loadings and, for partners, none of the items loaded primarily on the fourth factor. The 3-factor solution based on the model fit indices (e.g., CFI and TLI around 0.90), also received support for expectants but for partners the estimation did not converge. To overcome this issue, we would have had to exclude even more items to find an acceptable and sufficiently similar solution for expectants and partners. Therefore, we ended up inspecting the 2-factor solution. The model fit was acceptable for partners, $\chi^2(118) = 179.46$, $p < 0.001$, CFI = 0.92, TLI = 0.90, RMSEA = 0.06 (90% CI = 0.04; 0.08), SRMR = 0.05, and fairly close to acceptable for expectants, $\chi^2(118) = 208.85$, $p < 0.001$, CFI = 0.88, TLI = 0.85, RMSEA = 0.07 (90% CI = 0.05; 0.09), SRMR = 0.05. Although not all the model fit values quite reached the acceptable cut-offs among expectants, the 2-factor model seemed reasonable: all the items loaded on either of the factors similarly among expectants and partners, and there were no cross-loadings. Both factors also made sense from a theoretical point of view. As the 2-factor model was readily interpretable without having had to exclude any more items, we chose it as our final EFA model for coparenting expectations.

The 2-factor solution for the coparenting expectations and reliabilities of the factors are presented separately for expectants and partners in Table 3. Factor 1, *Expectations of cooperative coparenting*, consisted of items 1–3, 6, 9, 13, 16, 17, 20–24. Items 22 ("My partner will appreciate my efforts to being a good parent") and 24 ("My partner will make me feel like I'm best possible parent for our child") reflected this dimension the most strongly whereas items 3 ("My partner will ask my opinion on issues related to parenting"), 6 ("My partner and I will have the same goals for our child"), 16 ("My partner will have a lot of patience with our child"), and 17 ("We will often discuss the best way to meet our child's needs") reflected this dimension the most weakly in both expectants and partners. In addition, item 21 ("We will grow and mature together through experiences as parents") reflected this dimension most strongly in partners. Factor 2, *Expectations of coparenting conflict*, consisted of items 26–30. Item 30 ("We will yell at each other within earshot of the child") reflected this dimension most strongly whereas items 26 ("Sometimes I will find myself in a mildly tense or sarcastic interchange with my partner") reflected this dimension most weakly in both expectants and partners. The reliabilities for both dimensions in both expectants and partners are presented in Table 3.

Measurement Invariance of the Structure of Coparenting Expectations Between Expectants and Partners

Next, we examined the measurement invariance of the 2-factor structure of coparenting expectations between expectants and partners. The fit of the initial configural ESEM model was relatively poor (Table 4, model 1a). The modification index values (MIs) suggested several improvements that could be made to our model. However, only three of them were theoretically meaningful and found for both expectants and spouses. These three residual covariances were between items 13 ("My partner will be sensitive to our child's feelings and needs") and 16 ("My partner will have a lot of patience with our child") ($MI_{expectants} = 17.82$, $MI_{partners} = 9.80$), between items 21 ("We will grow and mature together through our experiences as parents") and 22 ("My partner will appreciate my efforts to be a good parent") ($MI_{expectants} = 18.86$, $MI_{partners} = 18.68$), and between items 29 ("Sometimes one or both of us will say cruel or hurtful things to each other in front of the child") and 30 ("We will yell at each other within earshot of the child") ($MI_{expectants} = 8.34$, $MI_{partners} = 9.57$). Both items of the first residual covariance reflect an emotional aspect of coparenting whereas the items of the second residual covariance relate to closeness and support between the spouses, and the items related to the third residual covariance reflect the conflict aspect of coparenting. Due to these considerations, these residual covariances were added to the model one by one. Our modified model fitted the data relatively well (Table 4, model 1b), and hence it was used as the basis for the remaining examinations of measurement invariance.

We found support for weak invariance; that is, the factor loadings were same across spouses (Table 4). Thus, both expectants and partners understood the two dimensions of coparenting expectations in the same way. However, we did not find support for complete strong invariance (model 3 in Table 4). This suggested that the mean response style between expectants and partners was different for one or

Table 3 Factor loadings for dimensions of coparenting expectations for expectants (*E*) and partners (*P*)

Final items of coparenting expectations	Expectations of cooperative coparenting		Expectations of coparenting conflict	
I believe…	*E*	*P*	*E*	*P*
	$\omega = 0.86$	$\omega = 0.84$	$\omega = 0.84$	$\omega = 0.84$
1. My partner will be a good parent.	**0.57**	**0.56**	0.02	−0.24
2. My relationship with my partner will be stronger after we have the child.	**0.53**	**0.57**	−0.11	−0.14
3. My partner will ask my opinion on issues related to parenting.	**0.53**	**0.38**	−0.05	−0.12
6. My partner and I will have the same goals for our child.	**0.50**	**0.37**	−0.05	−0.09
9. My partner will tell me I am doing a good job or otherwise let me know I am being a good parent.	**0.62**	**0.50**	−0.09	−0.06
13. My partner will be sensitive to our child's feelings and needs.	**0.62**	**0.51**	−0.07	−0.09
16. My partner will have a lot of patience with our child.	**0.47**	**0.34**	−0.01	−0.16
17. We will often discuss the best way to meet our child's needs.	**0.46**	**0.39**	−0.03	0.02
20. My partner will be willing to make personal sacrifices to help take care of our child.	**0.62**	**0.54**	0.07	0.04
21. We will grow and mature together through experiences as parents.	**0.50**	**0.82**	0.01	−0.00
22. My partner will appreciate my efforts at being a good parent.	**0.73**	**0.82**	0.06	0.03
23. When I feel I am at my wits end as a parent, my partner will give me the extra support I need.	**0.58**	**0.50**	−0.01	−0.16
24. My partner will make me feel that I'm best possible parent for our child.	**0.77**	**0.80**	0.02	0.07
26. I will sometimes find myself having a mildly tense or sarcastic interchange with my partner.	−0.01	0.06	**0.51**	**0.44**
27. My partner and I will argue about our child, in the child's presence.	−0.06	−0.10	**0.74**	**0.76**
28. My partner and I will argue about our relationship or marital issues unrelated to our child, in the child's presence.	−0.10	−0.08	**0.67**	**0.83**
29. Sometimes one or both of us will say cruel or hurtful things to each other in front of the child.	0.00	0.00	**0.81**	**0.82**
30. We will yell at each other within earshot of the child.	0.11	0.08	**0.89**	**0.88**

Correlations between the dimensions	1	2	3	4
1. Cooperative coparenting (Expectants)	1			
2. Cooperative coparenting (Partner)	0.42^{***}	1		
3. Coparenting conflict (Expectants)	-0.40^{**}	−0.11	1	
4. Coparenting conflict (Partner)	-0.27^{*}	-0.45^{***}	0.26^{**}	1

E expectant, *P* partner

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

Primary loadings are presented in bold

more of the items. For this reason, we tested for partial invariance of the item intercepts. The MIs suggested that the intercepts of items 13 (MI = 19.09 for expectants and partners) and 16 (MI = 35.11 for expectants and partners) in the dimension *Expectation of cooperative coparenting*, and items 29 (MI = 9.25 for expectants and partners) and 30 (MI = 10.70 for expectants and partners) in the dimension *Expectations of coparenting conflict* contributed most to the misfit. Expectants and partners differed on average in these four items, such that the mean of item 16 ("My partner will have a lot of patience with our child"), item 29 ("Sometimes one or both of us will say cruel or hurtful things to each other in front of the child") and item 30 ("We will yell at each other within earshot of the child") was higher for expectants whereas the mean of item 13 ("My partner will be sensitive to our child's feelings and needs") was higher for partners (Table 2). Equality constraints between the spouses in these intercepts were freed one at a time. After these modifications, the model fit was almost the same as it were after the examination of weak invariance, thus supporting partial invariance of the item intercepts (see Table 4, model 3p.).

In the final step, we examined strict invariance. It was supported by the data, which indicated that the residual

Table 4 Results of measurement invariance tests across spouses ($N = 157$ couples)

Invariance step		X^2	*df*	Scaling correction	X^2 difference test $\Delta X^2(df)^a$	*CFI*	*TLI*	*RMSEA (90% CI)*	*ΔCFI*	*ΔTLI*	*ΔRMSEA*
1a	None (configural invariance)	794.61***	538	1.02	–	0.86	0.86	0.06 (0.05; 0.06)	–	–	–
1b	None (configural invariance, modified)	720.53***	532	1.01	–	0.90	0.88	0.05 (0.04; 0.06)	–	–	–
2	Loadings (weak invariance)	763.43***	564	1.03	model 2 vs. 1b 43.01(32)[b]	0.89	0.88	0.05 (0.04; 0.06)	0.01	0.00	0.00
3	Loadings, intercepts (strong invariance)	866.81***	582	1.03	model 3 vs. 2 103.38(18)***	0.85	0.83	0.06 (0.05; 0.06)	0.04	0.05	0.01
3p.	Loadings, intercepts (p. strong invariance)	789.61***	578	1.03	model 3p. vs. 2 26.18(14)*	0.89	0.88	0.05 (0.04; 0.06)	0.00	0.00	0.00
4	Loadings, intercepts (p.), residual variances (strict invariance)	816.81***	596	1.08	model 4 vs. 3p. 25.64(18)[b]	0.88	0.87	0.05 (0.04; 0.06)	0.01	0.01	0.00

p. partial invariance

[a]Reference model fits the data better if $p < 0.05$

[b]not statistically significant

$^{*}p < 0.05$, $^{***}p < 0.001$

variances of the items were equal across expectants and partners (Table 4).

Relations Between Expectants' and Partners' Dimensions of Coparenting Expectations

Third, we examined the relations between expectants' and partners' dimensions of coparenting expectations. The results are shown in Table 3. The intra-spousal correlations between expectations of cooperative coparenting and coparenting conflict were negative for both expectants and partners: the more expectants and partners reported expectations of cooperative coparenting, the less they reported expectations of coparenting conflict. The associations were moderate (Cohen, 1988) and of similar magnitude across spouses. When we examined the interspousal results, we found a positive association between expectants and partners in both dimensions of coparenting expectations (Table 3). That is, the more the expectants reported expectations of cooperative coparenting, the more their partners also reported expectations of cooperative coparenting. A similar association was found for expectations of coparenting conflict. The association for expectations of cooperative coparenting was moderate whereas the association for expectations of coparenting conflict was weak (Cohen, 1988). In addition, expectants' expectations of cooperative coparenting showed a weak (Cohen, 1988) negative correlation with their partners' expectations of coparenting conflict: the more expectants reported expectations of cooperative coparenting, the less their partners reported expectations of coparenting conflict.

Associations Between Dimensions of Coparenting Expectations and Couple Relationship Quality

Finally, we examined the relations between the dimensions of coparenting expectations and the quality of the couple relationship while controlling for relationship length and level of education. In addition to domain knowledge, we provide results on concurrent and discriminant validity. The descriptive statistics for relationship quality and the control variables are presented in Table 5 and the main results in Table 6. One spouse's assessment of the quality of her/his relationship was positively associated with both her/his own expectations of cooperative coparenting and her/his spouse's expectations of cooperative coparenting: the higher one spouse's assessment of relationship quality, the more positive the coparenting expectations of both spouses. These strong (Cohen, 1988) associations were found among both expectants and partners. In addition, among both expectants and partners, relationship quality was negatively associated with both expectants' and their partners' own expectations of coparenting conflict; thus, the lower the relationship

Table 5 Descriptive data of the CRS-CPV dimensions, couple relationship quality and control variables ($N = 157$ couples)

	Range	Expectants		Partners	
		M	*SD*	*M*	*SD*
CRS-CPV dimensions					
Cooperative coparenting	1–7	6.29	0.57	6.28	0.55
Coparenting conflict	1–7	2.73	1.13	2.53	1.04
Couple relationship quality[a]		0.00	0.85	0.00	0.84
Length of the relationship	years	6.17	3.76	6.17	3.76
Level of education	0–1	0.82	0.39	0.68	0.47

[a]Couple relationship quality is standardized. CRS-CPV = Coparenting Relationship Scale – Couples' Prenatal Version

Table 6 Average variance extracted (AVE) for dimensions of coparenting expectations as well as correlations (r) and estimated amount of shared variance (r^2) between the dimensions of coparenting expectations and couple relationship quality ($N = 157$ couples)

Dimensions of coparenting expectations	AVE	Couple relationship quality			
		Expectants		Partners	
		r	r^2	r	r^2
Cooperative coparenting (*E*)	0.34	0.65^{***}	**0.43**	0.63^{***}	0.40
Cooperative coparenting (*P*)	0.32	0.72^{***}	0.51	0.52^{***}	**0.27**
Coparenting conflict (*E*)	0.54	-0.49^{*}	**0.24**	−0.41	0.17
Coparenting conflict (*P*)	0.58	−0.45	0.20	-0.55^{*}	**0.30**

E expectant, *P* partner

$^{*}p < 0.05$, $^{***}p < 0.001$

r^2 values presented in bold were used for discriminant validity examinations

quality, the more negative the coparenting expectations of both spouses. The association between relationship quality and expectations of coparenting conflict was moderate for expectants and strong for partners (Cohen, 1988). These results also suggest that the dimensions of coparenting expectations show sufficient concurrent validity in relation to couple relationship quality.

Results of the discriminant validity examinations showed that for both spouses, the AVE of coparenting conflict was higher than its shared variance with couple relationship quality (Table 6). Thus, the expectations of coparenting conflict could be regarded as distinct from couple relationship quality among expectants and partners, and thus, sufficient discriminant validity was demonstrated between these two measures.

Results of the discriminant validity examinations for cooperative coparenting differed for expectants and partners. Namely, the AVE for partners' expectations of cooperative coparenting was higher than its shared variance with couple relationship quality whereas the AVE for expectants' expectations of cooperative coparenting was lower than its shared variance with couple relationship quality (Table 6). Thus, the discriminant validity of the structure of the prenatal coparenting measure could be regarded as confirmed for partners but not for expectants. This means that expectations of cooperative coparenting could be regarded as distinct from couple relationship quality only to the extent that the results concern partners. Among expectants, expectations of cooperative coparenting could not be regarded as empirically distinct from couple relationship quality.

The results for the control variables showed that partners' level of education had a weak (Cohen, 1988) positive correlation with their expectations of coparenting conflict ($r = 0.13$, $p = 0.015$): the higher the partner's education, the more negative the partner's expectations of coparenting conflict. However, expectants' level of education was not associated with their coparenting expectations. Furthermore, relationship length was not associated with either expectants' or partners' dimensions of coparenting expectations.

Discussion

We set out to examine couples' prenatal expectations of coparenting and to validate the prenatal version of the coparenting relationship scale among couples expecting their first child in Finland. Our study contributes to filling a gap in knowledge on couple's prospective coparenting by showing that couples' expectations of coparenting were highly positive, their expectations comprised only two dimensions, namely *Expectations of cooperative coparenting* and *Expectations of coparenting conflict*, and that expectants' and partners' dimensions of coparenting expectations were associated with each other. We also found that couples' expectations of coparenting were associated with their prenatal relationship quality. Moreover, we found preliminary support for the validity and reliability of the Finnish version of the Coparenting Relationship Scale—Couples' Prenatal Version (CRS-CPV). Most importantly, however, our study provided novel information on couple dynamics in coparenting.

Our study, elaborating the work by Feinberg et al. (2012) and Pinto et al. (2018) outlined the development and validation of the prenatal version of the Coparenting Relationship Scale for use with Finnish couples. Our 2-factor structure differed from the 4-factor structure by Pinto and co-authors (2018) in the number and names of the dimensions. Our first dimension, *Expectations of cooperative coparenting*, consisted of the items that formed the dimension of coparenting support in Pinto's and colleagues' study. However, we decided to label our first dimension more broadly, as the items are based on the theoretical

notions and the measure of coparenting developed by Feinberg et al. (2012), which includes items that the authors have shown to reflect the dimensions of coparenting support, agreement, closeness, and endorse partner parenting. Endorsement (4 items) and support (6 items) were particularly well-represented in our first dimension, along with agreement (1 item) and closeness (2 items), although to a lesser degree. All in all, our findings suggest that expectations of cooperative coparenting during pregnancy have not yet become fully differentiated. Moreover, in line with our hypothesis (Hypothesis 1a), we found a dimension that represented coparenting conflict. This dimension corresponds to the conflict dimension found by Pinto et al. (2018) among fathers-to-be and by Feinberg et al. (2012) during the postnatal phase. It seems that this dimension can be identified among parents during different family phases, including during pregnancy. Moreover, Leal et al. (2022) suggest that the conflict dimension, which seems to be mostly a mixture of conflict and disagreement items, already emerges among heterosexual couples who are not yet expecting a child. However, the same was not found among sexual minority couples. Overall, it seems that these two dimensions, cooperative coparenting, and coparenting conflict, constitute the "core" of coparenting for both expectants and partners during pregnancy and that the other dimensions of coparenting are less evident to expectant parents at this prenatal point in the transition to parenthood.

Pinto et al. (2018) also reported two other dimensions, coparenting disagreement, and coparenting undermining, which we did not find in our study. However, our findings support Leal et al. (2022), who did not find these two dimensions when studying coparenting expectations among individuals who identify themselves as heterosexual who were not yet pregnant but instead found them in individuals who identify themselves as sexual minorities. In our study, the ten items measuring these dimensions were removed from the final analyses for several reasons. One of these items ("My partner will undermine my parenting") was removed because all participants disagreed totally with the item (i.e., the item lacked response variation). Moreover, another item ("My partner will sometimes make jokes or sarcastic comments about the way I am as a parent") was problematic as expectants and partners understood it differently: for expectants, the item reflected the same dimension as the items measuring conflict whereas for partners the item reflected the same dimension as the items that theoretically measured disagreement or undermining. Finally, some items either did not reflect any dimension in expectants or partners or their meaning was unclear due to cross-loading. As our aim was to find a similar factor structure for both spouses, we decided to remove the items which did not work well for one of the spouses. Thus, the remaining 18 items formed the maximum number of items, and the 2-factor solution was the only option that worked for both spouses. It is possible that the differences between our study and that of Pinto et al. (2018) are partly related to the fact that their data were collected during the first trimester of pregnancy, whereas our data were collected during the third trimester.

The results supported our hypothesis (Hypothesis 1b) by showing that it is possible to find a similar factor structure of coparenting expectations for both expectants and partners. In doing this, we tested measurement invariance between spouses, which while very important when studying couples remains largely untested (Sakaluk et al., 2021). However, the non-invariance found for two item intercepts in each of the two dimensions of coparenting expectations implies that the mean response style for these items differed between expectants and partners. Expectants had higher expectations of their partners being patient with their child. They also expected that they (one or both) will occasionally say cruel or hurtful things and yell at each other front of the child. In turn, partners had higher expectations of their spouses' sensitivity to their child's feelings and needs. These findings can be considered reasonable, as these differing response patterns can be understood, for example, from the standpoint of cultural norms that may have influenced how the expectants and their partners perceived these issues (Putnick & Bornstein, 2016). Namely, previous research across cultures has shown that sensitivity to her child's signals is generally perceived as an essential characteristic of the ideal mother (Mesman et al., 2016). However, as regards to patience, Finnish parents in a study by Halonen et al. (2021) reported it as a characteristic of both an ideal mother and an ideal father. Finally, a possible explanation for our finding that expectants had higher expectations than partners that one or both spouses will say cruel or hurtful things and yell at each other could be that the men had more unrealistic expectations than the women about the impact of parenthood on the couple relationship, most likely because women often end up having more responsibility for childcare (Bouchard, 2009). However, further research on prenatal coparenting is needed, as our scale is the first on the topic to assess both expectants and their partners.

As hypothesized (Hypothesis 1c), we found that expectants' and their partners' dimensions of coparenting expectations were associated with each other, indicating intrafamily agreement on coparenting (Feinberg et al., 2012). Intra-spousal correlations between expectations of cooperative coparenting and coparenting conflict were negative for both expectants and partners and interspousal correlations between expectants and partners were positive for both dimensions of coparenting expectations. In addition, expectants' expectations of cooperative coparenting correlated negatively with their partners' expectations of

coparenting conflict. This last result indicates that when an expectant's expectations of the coparenting situation are positive, her partner's conflict expectations are lower. In other words, this gives preliminary indications that what an expectant think about coparenting is reflected in her partner's conflict expectations. However, the reverse correlation (of partners' expectations of cooperative coparenting with expectants' expectations of coparenting conflict) was not found. This result implies that when a partner sees the coparenting situation positively, this is not reflected in the expectant's conflict expectations. One possible explanation for these results could be the more central role of mothers than fathers in coparenting, at least in Finland. However, as in previous studies (Feinberg et al., 2012), these correlations were relatively weak. This suggests that mothers' and fathers' views on coparenting may in part already differ in the prenatal phase.

Finally, as expected (Hypothesis 2) based on previous findings (McHale et al., 2004), we found that couples' coparenting expectations were rather strongly associated with their prenatal relationship quality, and thus supported concurrent validity. Participants' assessment of their relationship quality was positively associated with both their own and their spouse's expectations of cooperative coparenting. In addition, both expectants' and partners' relationship quality was negatively associated with expectants' and partners' own expectations of coparenting conflict. As couples expecting their first child do not yet have experience of coparenting, their perception of how well they are doing in their couple relationship seems to play a key role in their expectations of future coparenting. However, as expected, we found that spouses' expectations of coparenting conflict were empirically distinct from couple relationship quality, even if closely connected (discriminant validity). However, contrary to our hypotheses, expectations of cooperative coparenting seemed, for expectants, to reflect a high level of couple relationship quality. Previous studies (Le et al., 2016) have also found that the effect of coparenting on couple relationship quality may be stronger for mothers than fathers. According to Le et al. (2016), this may be related to women's propensity to evaluate their couple relationship quality on how well it supports their parenting.

Limitations and Future Research

Our study has its limitations. First, the sample size at the couple-level was quite small. Thus, our study is likely to suffer from limited statistical power. This may explain why the association between one spouse's assessment of the quality of their couple relationship and the other spouse's expectations of coparenting conflict did not reach statistical significance (correlations were −0.45 and −0.41). Second, the sample was rather homogeneous as most of the expectant parents were higher educated, living in an urban area, and in a heterosexual relationship. Therefore, our results may not be generalizable to lower educated parents or parents with a different sexual orientation or demographic background. Participants in other family studies have often also tended to be higher educated, and it has been noted (see Rönkä et al., 2014) that parents, especially mothers, who decline to participate in research are often lower educated. A lower parental socioeconomic background has also been shown to be associated with higher level of undermining behaviors (Schoppe-Sullivan & Mangelsdorf, 2013) and to lower perceived resources and capabilities to fulfill future parenting tasks (Alakärppä et al., 2022). Thus, it may be that the coparenting expectations of highly educated parents are oriented more towards supportive coparenting than those of less educated parents. Therefore, future research should investigate the CRS-CPV measure across more socioeconomically diverse samples of couples. Knowledge on such couples would help to understand and protect parents and future parents in vulnerable socioeconomic contexts. Third, although the amount of missing data (3.97%) in our study was small, it is possible that the missingness in the data is not random (i.e., the non-participating spouses may have differed from the participating ones). If so, this would to some extent bias our results. Fourth, and related to the limitations mentioned above, our results showed that couples had highly positive expectations about their future coparenting. However, it is possible that couples with more negative expectations did not participate in the study and therefore, our results might not be generalizable to them. Fifth, our version of the prenatal coparenting scale may limit the assessment of prenatal coparenting, particularly on coparenting closeness. Of the three original closeness items included in the original scale (Pinto et al., 2018), only two remained in our version of the scale, one of which reflected the cooperative dimension differently between expectants and partners. Thus, only one closeness item functioned as originally intended among the Finnish couples. Therefore, to better capture emerging coparenting during the prenatal phase, future research should consider including new theoretically relevant (see Feinberg, 2003; Feinberg et al., 2012) items to assess prenatal expectations of coparenting closeness. Qualitative interviews with expectant parents could be useful for the formulation of new items. Moreover, because our sample contained only one same-gender couple, we could not consider them in detail. However, previous research (Leal et al., 2022) has shown that the factor structure found for individuals who identify themselves either as sexual minorities or heterosexuals who are in a committed relationship but not yet pregnant is partly different. Therefore, coparenting in the prenatal phase should perhaps be also

measured with different criteria among sexual minority and heterosexual couples. Finally, because our data were cross-sectional, it is not possible to take a position on the causal relationship between the expectations of coparenting and the quality of couple relationship or to examine the predictive validity of coparenting expectations.

Despite these limitations, our study provides valuable new information on coparenting expectations between spouses as measured by the CRS-CPV. Our findings have several implications for policy makers and professionals in family services. Our study highlights the importance of considering coparenting and discussing coparenting expectations already during pregnancy, for example through prenatal clinics. Our results suggest that, during pregnancy, parents-to-be do not yet have a broad conception of coparenting, but rather through only two dimensions: *Expectations of cooperative coparenting* and *Expectations of coparenting conflict*. Future parents may also have unrealistic expectations and view their future coparenting through rose-colored glasses, in which case potential conflicts can come as a surprise. Future research should also study the expectations of couples in different cultures, as these may be affected by their cultural context (Feinberg, 2003). The fact that our study was carried out in Finland, a country where gender equality, division of labor between spouses, and parental leave for both spouses are emphasized, may in part explain our expectant parents' high level of optimism regarding their future coparenting.

Our study enriches the current debate and theory on coparenting by introducing a theory-based bidimensional measurement instrument for examining couples' prenatal expectations of coparenting per se, rather than examining these via interview-based measures or measures that focus solely on one aspect of coparenting, such as the division of labor between spouses (see, e.g., McHale et al., 2004; McHale & Rotman, 2007). To our best knowledge, no other published questionnaires exist for studying the prenatal coparenting expectations of couples. On the view that coparenting is one of the possible family subsystems and that the members of this subsystem are dependent upon one another (Minuchin, 1985), it is crucial to focus specifically on couples' coparenting expectations. Thus, inclusion of this spousal interdependence in future research on coparenting expectations may offer new insights on spouses' coparenting dynamics. Overall, our results suggest that the Finnish version of the CRS-CPV is a promising instrument for assessing the couples' coparenting expectations, especially among heterosexual couples.

Author Contributions All authors contributed to the study conception and design. Material preparation and data collection were performed by E.L., E.R., K.M., and A.R. Analysis was performed by E.L. and E.R. The first draft of the manuscript was written by E.L. and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Ethics Approval The questionnaire and methodology for this study were approved by the Human Research Ethics Committee of the University of Jyväskylä (January 7, 2020).

Consent to Participate Informed consent was obtained from all individual participants included in the study. Participation was voluntary.

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