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Psychometric properties of the Spanish version of the Family Centred Practice Scale for use with families with children with Autism Spectrum Disorder

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ABSTRACT

Background: The Family-Centered Practices Scale assesses the degree to which staff in Early Childhood Intervention and Development Centers use this approach. However, there is no adaptation of this scale to families of children with Autism Spectrum Disorder in early intervention in Spain. *Objectives:* To validate and analyze the psychometric properties of the Family-Centered Practices scale in Spanish parents with children with Autism Spectrum Disorder. *Methods:* Descriptive analyses, exploratory factor analysis ($n_1 = 211$), confirmatory factor analysis ($n_2 = 236$), and scale reliability analyses were performed. In addition, the invariance of the scale by parents' age and gender was assessed, and a longitudinal analysis of the scores was performed. *Results:* A scale with a two-factor structure was obtained, similar to the original version, where the goodness-of-fit indices were excellent (RMSEA [95%CI] = 02[0.01; 0.03]; CFI = 0.97; TLI = 0.98; RMR = 0.02; GFI = 0.96). However, the measure was not invariant in gender, with differences between fathers and mothers. Additionally, the internal consistency of the full scale ($\alpha = 0.94$, $\omega = 0.90$) and of the two dimensions showed high values in this sample and comparing the means between the two measurement time points showed no differences, the test was powerful had a large effect size. *Discussion:* The psychometric properties of this scale are adequate, which makes it faster to apply and gives it better clinical applicability. *Conclusions:* This version of scale in Spanish is a valid, reliable tool for evaluating family-centered practices in families with children with Autism Spectrum Disorder.

The Autism and its associated disorders were defined as pervasive developmental disorders. However, in the DSM-5 (APA, 2013) the term Autism Spectrum Disorders (ASD) has been included in a wider category of neurodevelopmental disorders. This diagnostic classification has replaced four subtypes (Autistic Disorder, Asperger's Syndrome, Childhood Disintegrative Disorder and Pervasive Developmental Disorder Not Otherwise Specified) with the general category ASD. The following symptoms are included, which have to do with the appearance of deficiencies in social communication (social and communication problems are combined) and with restricted and repetitive behaviors. In addition, deficiencies in language are no longer included in this category of symptoms of DSM-5, and the clinical symptom called unusual sensitivity to sensory stimuli, which did not appear in previous definitions, is incorporated into the category of repetitive behaviors (APA, 2013). The symptoms must be present from early childhood, although they may not be fully manifested until social demands show limitations in the response.

In Spain, when a child is suspected of having a developmental disorder, or at risk of suffering, they are referred to an Early Childhood Intervention and Development Center (ECIDC) (Robles-Bello & Sánchez-Teruel, 2013). These centers target children aged 0–6 years old and their families in order to improve their future adaptation to school and to promote their psychological development (Robles-Bello et al., 2020; Robles-Bello et al., 2018). Children with Autism Spectrum Disorder and their families are cared for in these centers from the moment any symptoms associated with this disorder are suspected. Ever since they began, ECIDC centers have had a principally child-focused approach aimed fundamentally at rehabilitation, in which the staff would manage most of the decisions about the early care process (Robles-Bello & Sánchez-Teruel, 2013). FCP is a capacity-building approach to ECIDC and is in fact an alternative approach to a deficit (therapeutic) approach to ECIDC (Mas et al., 2018). According to Escorcia et al. (2019), FCP

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highlights the rights of the child to fully enjoy their family and social life, such that, with appropriate support they can have the same opportunities in their family and community environments as other children. In addition, this approach includes actions to facilitate communication with families and guide their experience as parents, helping them to make informed, conscious decisions about their children's intervention processes (Valencia Naranjo & Robles-Bello, 2020).

In this model of early intervention, families are of particular interest. However, from the time that parents receive the news that their child may have a disorder, they experience intense stress (Calero-Plaza et al., 2017; Goedeke et al., 2019). This may modulate the impact of early intervention in the ECIDC (Dempsey & Keen, 2017; Dempsey et al., 2009). In particular, when parents have coping skills that are more problem-focused than emotion-focused, stress is lower and family well-being is better (Masefield et al., 2020), maximizing the effect of the intervention on the child and promoting a better therapeutic prognosis (Mas et al., 2019). Ashworth et al. (2019) find that there are differences in parental stress according to the disability or developmental disorder of their child, so the process of adaptation of the parents to the new situation is related to the etiology of the child's problem. It is observed that parental stress is present in multiple developmental disorders or disabilities, such as ASD, Down syndrome (DS), Cri du Char syndrome, Prader- Willi and Williams syndrome (Fairthorne et al., 2015; Woodman et al., 2015) and each family responds to the stressful situation differently depending on their child's disability or disorder (Ashworth et al., 2019; Mori et al., 2018). Watson et al. (2011) and Iadarola et al. (2019) discuss depression and stress for parents of children with ASD compared to parents of children with DS. Parents of children with ASD have higher rates of chronic stress than parents of children with DS due to their own difficulties in social interactions, rigid behaviours, and problems with language and communication. In the case of ASD, some works such as that of Drogomyretska et al. (2020) add that parental stress is directly related to the professional support they receive, as well as to the level of social support in their close relationships. This leads to the development of new ways of intervening with parents with ASD through Family Centred Planning specifically for these children with ASD as is the case with Frantz et al. (2017) and Cachia et al. (2016). However, a clear limitation of these interventions lies in how to measure their impact, due to the limited availability of family-centred practice measurement tools adapted to this particular clinical population.

Also, in the research by Trivette, Dunst, and Hamby (2010) it was found that parents' beliefs in self-efficacy were directly related to the implementation of supportive practices aimed at building their child's capacities, so that parents feel effective in the way they operate in their family environment. On the other hand, working on the family's strengths by accessing various available resources was related to the family's well-being. All these results are supported by meta-analysis research on FCP (Dunst et al., 2008) which shows that family practices have direct effects on the behavior of parents, family and child and this influence would be mediated by the indirect effects of self-efficacy beliefs. Therefore, predictive variables such as, for example, support for the development of children's capacities specifically include relational and participatory capacities in the professional-parent-child triad, as well as, intervention practices in family systems encompass the needs that families themselves have, the supports and/or social resources they have and the family strengths. In addition, when they refer to self-efficacy beliefs, they include beliefs about control over life situations and about the control they have to take advantage of the help offered by professionals. Other predictive variables of great interest are parental well-being, parent-child interactions, and of course, child disability and development. We must also take into account other variables such as the characteristics of each family and family history (Mas et al., 2019; Trivette et al., 2010). The results of Dempsey and Keen (2017) and Dunst and Espe-Sherwindt (2016) also indicate that self-efficacy beliefs mediate between intervention practices in family systems and other family-related variables, such as parent-child interactions or the development of their children's capacity. In short, the importance of these self-efficacy beliefs should be stressed as they have proven to be a great coping mechanism of the stress situation and an enhancer of family well-being and are related to the capacity of parents to influence the intervention programme (Dunst & Trivette, 2009; Dunst et al., 2008).

There are tests for evaluating the effects of FCP (Dunst & Trivette, 2003; King et al., 2004), however some of them have significant limitations. The *Measure of Processes of Care* (MPOC-20) is a scale with 20 items, the reliability of which has not been evaluated, nor has its measurement invariance (King et al., 2004). In contrast, the *Family-Centered Practices Scale-FCPS* (Dunst & Trivette, 2003) seems to be a suitable scale for measuring professional practices that result from the family-centered model (Mas et al., 2018). However, the type of disability that the child has can improve or worsen the prognosis of an intervention based on family-centered planning (Goedeke et al., 2019), especially when dealing with children aged between 0 and 6 years old (Ashworth et al., 2019; Mori et al., 2018). Mas et al. (2018) examined the psychometric properties of the *Family-Centered Practices Scale-FCPS* (Dunst & Trivette, 2003) for Early Treatment, although only 19 (18.1%) parents of children with autism participated in the study, so the number is very small. In addition, a subsequent validation in the Spanish population reported significant differences in the numbers of mothers and fathers, with around 80% more mothers than fathers taking part (Mas et al., 2019). A similar limitation had already been noted by the original English-speaking authors (Dunst & Trivette, 2003). Variability of a measure with regards to the gender of the respondent in self-reported measures is a methodological essential, which is fundamental for items in a scale to be able to be understood as being equal in both sexes (Muñiz et al., 2013) and for the instruments to be able to be valid, especially in specific clinical populations (Hernández et al., 2020). To date, there seem to be no studies that have adapted the *Family-Centered Practices Scale-FCPS* and considered measurement invariance depending on whether it is the mother or father doing the reporting, nor have we found validated studies in Spanish parents of children with ASD.

For this reason, the present study aims to assess the psychometric properties of the FCPS in a sample of Spanish families with children with ASD. More specifically, we aim to analyze the structure and internal consistency of the scale, as well as to determine invariance between genders (mothers and fathers) and longitudinally compare scores after six months.

1. Method

1.1. Participants

We first contacted 471 families with children with ASD in Early Childhood Intervention and Development Center (ECIDC). The parents completed an ad hoc Likert-type scale with five response options (1 = never, 5 = always) reflecting the extent to which the intervention program in the center was aimed at the family or only at the child (Mas et al., 2018). The inclusion criteria were: a) having a child with ASD, b) regularly attending the center for at least 6 months, and c) The child's intervention model in the ECIDC center being based on family centered planning. From the initial total, 24 parents were excluded for not meeting one or more of the inclusion criteria. Ultimately, 447 parents with children with ASD from various provinces in the south and the centre of Spain participated. Slightly more than half of the respondents (238) were women, 209 were men, and ages ranged from 21 to 66 years old (M = 34.5; *SD* = 1.12). The total sample was randomly divided into two sub-samples (n_1 and n_2) for factorial analysis (Goretzko et al., 2019; Muñiz & Fonseca-Pedrero, 2019). Table 1 gives the most important sociodemographic variables.

1.2. Instruments

Sociodemographic data sheet: This collected the respondent's sex, age,

Table 1
Sociodemographic characteristics of the families.

	N(%)	n_1(%)	n_2(%)
Gender			
Female	238 (53.24)	110 (46.22)	128 (53.78)
Male	209 (46.76)	101 (48.33)	108 (51.67)
Mean age (Standard deviation)	34.5(1.12)	35.5 (0.90)	36.2 (0.41)
Civil status			
Single	10(2.24)	4(1.90)	6(2.54)
Married or in stable partnership	280 (62.64)	133 (63.03)	147 (62.29)
Separated/divorced (living alone)	21(4.70)	8(3.80)	13(5.51)
Separated/divorced (with partner)	136 (30.42)	66(31.27)	70(29.66)
Educational qualifications			
No qualifications	73(16.34)	34(16.12)	39(16.52)
Primary education	138 (30.87)	64(30.34)	74(31.35)
Secondary education	144 (32.21)	70(33.17)	74(31.35)
University or higher	92(20.58)	43(20.37)	49(20.78)
Employment			
Full time	220 (49.22)	103 (48.82)	117 (49.58)
Part time	201 (44.97)	97(45.97)	104 (44.07)
Unemployed	26(5.81)	11(5.21)	15(6.35)
Mean number of months attending ECIDC	31.8	29.2	30.3
Total	447	211	236

who was completing the scale, civil status, educational qualifications, employment, and time spent attending early intervention.

The Family-Centered Practices Scale-FCPS by Mas et al. (2018) which is the Spanish version of the original by Dunst and Trivette (2003). This is a self-report for evaluating how much the staff at the ECI centers use FCP-based methodology. This scale has 12 items and two subscales, one with six items which measures the relationships between parents and staff, called *relational practices (RP)*, and the other, also with six items, that includes aspects related to parental participation encouraged by staff, called *participative practices (PP)*. Relational practices are those aimed at achieving appropriate clinical activities such as active listening and empathy, and include the evaluation of the staffs' beliefs about the strengths of the family. Participative practices are aimed at understanding the family's concerns, needs, and priorities, including decision making and achieving set targets (Dunst & Trivette, 2009). The responses were given on a five-point Likert-type scale from 1 = never to 5 = always. The original scale produced an alpha coefficient of 0.93 (α_{RP} = .91 y α_{PP} = .91) (Dunst et al., 2008) whereas the Spanish version gave an overall alpha coefficient of 0.91 (α_{RP} = .81 y α_{PP} = .83) (Mas et al., 2018).

1.3. Procedure

First, we contacted the authors of the Spanish version of the FCPS to obtain the original scale and to inform them of our study (Mas et al., 2018). Following that, we obtained a favorable report from the ethics committee at the University of XXX (Code: ABR.20/5.TFM). Meanwhile, we contacted the presidents and directors of several associations with Early Childhood Intervention and Development Center (ECIDC) for Autism in Spain. All of the staff were informed about the research project orally and in writing. Following approval from the centers, they provided us with contact details for the parents, to whom we sent a document explaining the study and its main objectives. Subsequently, we contacted the parents who volunteered to participate and gave them more detailed information about the process, as well as assuring them of the confidentiality of their personal data. Parents were evaluated separately, with each being given an FPCS scale and the sociodemographic data sheet individually, in order to consider both parents' experiences in ECIDC.

Data collection began in January 2020 without interference in the therapeutic process, and without interrupting families' planned sessions. The tests were given to the parents to complete between sessions, and they sent the information back by email the following weeks. Finally, we performed a follow up, repeating the family evaluations at six months approximately by administering the scale again, giving us meaningful longitudinal results about the FCPS. The COVID-19 pandemic in Spain delayed the return of the scale in some families until September 2020.

1.4. Data analysis

Missing data represented less than 3% of the responses, and we used a multiple imputation method (SPSS) for the missing values (Graham, 2012). Following that, we carried out tests for internal consistency, item analysis, and exploratory factor analysis (EFA), using FACTOR 10.10.3 for ordinal data (Lorenzo-Seva & Ferrando, 2006). This program allows the calculation of the proportion of shared variance explained for each of the extracted factors (Baglin, 2014) and is considered a semi-confirmatory (SCFA) procedure in which there is the possibility of inspecting the residuals (Ferrando & Lorenzo-Seva, 2017). For the EFA, we used unweighted least squares (ULS) (Timmerman & Lorenzo-Seva, 2011) for the factor extraction process using parallel analysis (PA) with Pearson correlations and optimal implementation because the univariate distributions of the ordinal elements exhibited excessive asymmetry and kurtosis. The original factor structure (two subscales of items) was maintained for the analysis. We used a promin method (Lorenzo-Seva, 1999) as the rotation procedure to obtain maximum parsimony when interpreting the factorial solution. The methodological criteria for eliminating items were: a) factor loadings below 0.50 given the size of this sample (Hair, Black, Babin, Anderson, & Tatham, 2006), b) complex elements with cross loading in various factors in the scale, c) and for the model to be considered acceptable, the value of the root mean square of the residuals (RMSR) must be below 0.035 (Kelly's criterion) (Kelley, 1935, p. 146 or Harman, 1962, p. 21).

Following that, we performed a confirmatory factor analysis (CFA) using the second subsample and SPSS 23 AMOS (IBM Corporation, 2013) to confirm the structure of the CFPS and the new structure resulting from the EFA. For the confirmatory analysis we used the generalized least squares method (GLS). The indices of fit used were χ^2/df, root mean square error of approximation (RMSEA), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). Goodness of fit is considered adequate when TLI and CFI $\geq$ 0.95 and RMSEA is close to 0.06 (Kline, 2016). We also examined whether there were differences in the invariance of the measure by gender using multigroup CFA with AMOS. We defined two additional models for gender and used the Satorra-Bentler (χ^2) scale and associated p values, together with RMSEA at 90% CI, and CFI for the invariance of the measure as an index of incremental fit (Hooper, Coughlan, & Mullen, 2008). Invariance of the measure is accepted when $p > .05$ of $\Delta\chi^2$; RMSEA values $\leq$ 0.05, and the ΔCFI of the compared models < 0.01 (Byrne, 2016). Finally, we assessed reliability using the internal consistency procedure (Cronbach alpha and McDonald's omega) and compared the means between the two testing timepoints (at approximately 6 months), evaluating the power of the test and the effect size using G*Power 3.1.9.7 (Faul, Erdfelder, Buchner, & Lang, 2009). The level of statistical significance required in all of the tests was a minimum of $p < .05$.

Table 2
Descriptive statistics, indices of asymmetry and kurtosis, and item analysis.

	FCPS	M(SD)	*K-S*	S *SE(−01)*	K *SE(2.69)*	*r item-total*	*α item removed*
	Relational Practices (RP) subscale						
1	The staff really listen to my concerns and requests	2.19(0.13)	0.12**	0.11	0.62	0.73	0.65
2	The staff see my child and my family in a positive healthy way	2.26(0.19)	0.34**	−0.19	−0.23	0.51	0.77
3	The staff understand my child's and family's situation	2.21(0.26)	0.61**	0.09	−0.65	0.62	0.52
4	The staff recognize my child's and family's strengths	2.34(0.48)	0.82**	−1.14	2.08	0.58	0.56
5	The staff do what they promise to do	2.15(0.31)	0.76**	0.05	−0.89	0.84	0.64
6	The staff recognize the good things I do as a parent	3.11(0.25)	0.89**	0.13	−0.82	0.69	0.61
	Participative practices (PP) subscale						
7	The staff provide me with the information I need to be able to make good choices	3.91(0.24)	0.38**	0.26	−0.83	0.86	0.83
8	The staff are responsive to my requests for advice and help	3.23(0.37)	0.62**	−0.29	−0.91	0.94	0.62
9	The staff help me to be an active part of getting required resources and support	2.33(0.34)	0.54**	−1.63	−1.82	0.73	0.79
10	The staff are flexible when my family situation changes	3.08(0.13)	0.73**	0.12	−0.63	0.68	0.58
11	The staff help me learn how to do things that benefit my child and family	2.45(0.19)	0.29**	−0.51	−0.72	0.79	0.53
12	The staff support me when I make decisions	2.28(0.56)	0.36**	0.21	−0.11	0.62	0.48
	TOTAL	64.21(6.22)	0.71**	1.76	1.92	1	0.87

N° FCPS = Original item numbering; M = Mean; SD = Standard deviation; S = Asymmetry; K = Kurtosis; SE = Standard error of asymmetry and kurtosis; K-S = Kolmogorov-Smirnov test; *Significant correlation at 0.05 (bilateral); ** Significant correlation at 0.01 (bilateral).
Exploratory factor analysis ($n_1 = 211$).

2. Results

2.1. Descriptive analysis of the items (N = 447)

The results of the item analysis and internal consistency indicated a remarkable variability in the asymmetry and kurtosis of this sample (Table 2), indicating a univariate lack of normality. It is observed that all items present an adequate correlation with the total score (>0.50) and the reliability index if the item is eliminated does not improve the reliability level of the full scale.

The Kaiser–Meyer–Olkin sampling adequacy index (KMO = 0.91), Bartlett's sphericity test ($\chi^2 = 32.436.2$; $p < .001$), and the determinant of the correlation matrix (0.005) demonstrated the suitability of the data for exploratory factor analysis (Nunnally & Bernstein, 1995). The FACTOR program compares the mean or the 95th percentile of the factor's percentage of common variance explained from the randomly permutated data to the observed explained common variance from the sample. If the observed percentage of a factor is greater than the random percentage, the factor is retained. This happened twice with the FCPS-S. Therefore, we extracted two dimensions which explained 36.94% (Factor I) and 28.32% (Factor II) of the variance (based on eigenvalues) (Table 3). As the table shows, the factorial loading for each item was over 0.50 in each dimension.

2.2. Confirmatory factor analysis ($n_2 = 236$)

The results of the analysis of multivariate normality in the second sample ($n_2 = 236$) showed that there was no multivariate normality in the distribution of the items (Mardia = 643.22) (Mardia, 1970). The results in Table 4 confirm the results obtained in the exploratory factor analysis. In particular, the CFA obtained very good adjustment rates for the FCPS-Spanish in this sample, observing an adequate and significant χ^2/df and all other rates were excellent: RMSEA (95% CI) below 0.06, adequate values for IFC, TLI and GFI above the 0.95 limit, with good concordance between the goodness-of-fit indices. Therefore, based on these results, the adjustment and adequacy of the FCPS data in this second ASD sample was considered very strong (Table 5).

2.3. Invariance of the measure according to gender ($n_2 = 236$)

The CFA models nested for gender (fathers and mothers) exhibited good fit to the data, indicating that a multiple group CFA was appropriate. However, the configural invariance test for gender (reference model) demonstrated problems in variability. We found that complete scalar invariance was adequate (ΔCFI = 0.004), but that metric invariance was not ($\Delta\chi^2_{(8)} = 67.34p < .05$; ΔCFI = 0.09), indicating that the factors did not load equally in men and women. These results suggest that there may be gender differences between parents, even if marginal, in this sample.

2.4. Reliability and comparison of means (longitudinal)

Table 6 indicates the consistency of the results via the Cronbach alpha coefficient and the omega coefficient, with values for the overall scale and for the two subscales being adequate. The total alpha for the FCPS-S scale (Appendix A) was 0.94, which indicates excellent internal consistency, and for both coefficients the indices of consistency were acceptable. Comparison of the means between the two testing time-points (initial and after approximately 6 months) did not demonstrate differences between the two, there was notable test power, but a very small effect size.

3. Discussion

This study aimed to assess the psychometric properties of the Family-Centered Practices Scale-FCPS (Dunst & Trivette, 2003) and evaluate a sample of Spanish parents of children with ASD who are receiving Early Childhood Interventions. We analyzed the structure and internal consistency of the scale, and tested measurement invariance between genders (mothers and fathers), as well as comparing scores longitudinally at six months.

Research about family-centered planning (FCP) has shown that his approach is effective in improving interactions between parents and children and the development of children with ASD (Ashworth et al., 2019; Fairthorne et al., 2015; Iadarola et al., 2019; Mori et al., 2018; Woodman et al., 2015). Drogomyretska et al. (2020) add that parental stress is directly related to the support they receive from their caregivers and close relationships. Parents learn to modify certain beliefs and behaviors to influence their children's learning, they become more aware of their active role in this process of continual development, and can improve their family dynamics and quality of life in general (Drogomyretska et al., 2020; Robles-Bello et al., 2020; Valencia Naranjo & Robles-Bello, 2020).

The Exploratory Factor Analysis (EFA) suggests that the structure of the *Family-Centered Practices Scale-FCPS* adapted to Spanish by Mas et al. (2018) effectively evaluates FCP and that its items have a suitable fit in

Table 3
Exploratory factor analysis for FCPS ($n_1 = 211$).

	Dimensions		
	1	2	h^2
RP			
1	**0.63**	0.11	0.18
2	**0.78**	0.05	0.23
3	**0.71**	0.19	0.89
4	**0.62**	0.21	0.92
5	**0.74**	0.06	0.38
6	**0.86**	0.17	0.85
PP			
7	0.27	**0.73**	0.65
8	0.19	**0.82**	0.11
9	0.11	**0.89**	0.23
10	0.22	**0.72**	0.36
11	0.10	**0.81**	0.58
12	0.14	**0.66**	0.65
% Variance	36.94%	28.32%	

Rotated loading with values > 0.50 in bold; h^2 = Communities; Factor I (RP) = Relational practices; Factor II (PP) = Participative practices.

families with a child with ASD. In this regard, we found that on examining the structure of the Spanish version of the original FCPS-S, item analysis indicated that it maintained its original two-dimensional structure. In addition, our analysis indicates that all of the items in the RP dimension had an appropriate fit, and the item with the best fit was item 6 ("The staff recognize the good things I do as a parent"), this suggests the need to take care of relational aspects in order to offer families quality care in the professional-family-child interaction (Balcells-Balcells et al., 2019; Escorcia et al., 2019; Friedman, 2019; Mas et al., 2016). Also, in the PP dimension had an appropriate fit, and the item with the best fit was item 9 (*"The staff help us to be an active part of getting required resources and support"*), highlighting the importance of families' active participation in the therapeutic process (Masefield et al., 2020). However, a practitioner would never intervene at the item level, but would consider the totality of responses from a set of items for each subscale of the FCPS-S, it would be interesting to encourage both subscales. Relational practices should be directed towards appropriate clinical actions such as active listening and empathy. This subscale includes the evaluation of the professional's beliefs about family strengths. On the other hand, participatory practices should be directed at understanding the concerns, needs and/or priorities of the family, thus including decision-making and the achievement of proposed goals (Dunst & Trivette, 2009; Dunst et al., 2009). Other authors such as Dempsey and Keen (2017) maintain that the two subscales, both relational and participatory, are linked to positive outcomes in therapeutic intervention, with participatory practices being of greater importance because they contribute most to improving child development. Also, other research (Escorcia et al., 2018), conclude according to their analyses of the PCF, that professionals tend to use relational practices more than participatory ones, indicating the need to promote their use due to their importance for therapy. In any case, both relational and participatory practices bring us closer to achieving the development of skills and the creation of new capacities in the field of child disability (Dunst & Espe-Sherwindt, 2016).

The confirmatory factor analysis of the original two-factor model proposed by the authors of the scale showed good fit with the most important indices. The scale shows good internal consistency for the global score, with a Cronbach's alpha of 0.94 and a McDonald's omega coefficient of 0.90.

None of the studies reviewed had evaluated gender invariance in the FCPS-S, and no studies have found differences in FCP due to this variable. The results of measurement invariance, which show that the CFA models specified for men and women demonstrated a good fit to the data, indicated that a multi-group CFA was appropriate. However, the results indicated that there was no gender invariance in the measure, suggesting that men and women understand the items in the FCPS-S in

Table 4
Goodness of fit indices for the CFA ($n_2 = 236$).

	χ^2	df	χ^2/df	*p*	RMSEA (95% CI)	CFI	TLI	RMR	GFI
FCPS-s	44.12	26	1.70	0.00	0.02[0.01; 0.03]	0.97	0.98	0.02	0.96

FCPS-s = Family-Centered Practices Scale in Spanish; χ^2 = Chi square; df = degrees of freedom, $\chi 2$/df = Chi square goodness-of-fit index; p = significance level; RMSEA = Root mean square error of approximation; CFI = Comparative fit index; TLI = Tucker-Lewis index; RMR = Root mean residual; GFI = Gamma index.

Table 5
Indices of fit for tests of measurement invariance by gender (fathers and mothers).

	χ^2	df	χ^2/df	*p*	RMSEA (95% CI)	CFI	$\Delta\chi^2$	ΔCFI
Men (n = 108)	31.46	21	1.49	0.08	0.02[0.01; 0.03]	0.91		
Women (n = 128)	43.17	21	2.05	0.00	0.03[0.01; 0.04]	0.98		
Configural invariance	87.14	71	1.23	0.29	0.03[0.02; 0.03]	0.98		
Scalar invariance	194.15	71	2.73	0.56	0.04[0.02; 0.06]	0.95	27.53^{ns}	0.004
Metric invariance	293.22	74	3.96	0.00	0.02[0.01; 0.06]	0.88	67.34**	0.09

χ^2 = Chi-square; df = degrees of freedom, χ^2/df = Chi-square goodness-of-fit index; p = significance level; RMSEA = root mean square error of approximation; CFI = comparative fit index; $\Delta\chi^2$ = test of difference between the metric and scalar invariance models; ΔCFI = test of difference between comparative fit indices; * = $p < .05$; ** = $p < .01$; ns = not significant.

Table 6
Descriptive statistics, reliability, comparison of means, test power and effect size ($n_2 = 236$).

	M(DT)	Min.	Max.	K-S	A(0.32)	K(0.63)	ω	α	*t*	η^2	Pow.
FCPS-s	79.18(4.23)	12	60	0.26**	−1.07	2.24	0.90	0.94	16.11^{ns}	0.12	1.06
RP	4.11(1.26)	6	30	0.54**	0.17	0.44	0.89	0.91	12.15^{ns}	0.09	0.96
PP	4.16(1.34)	6	30	0.39**	−1.06	1.18	0.86	0.93	16.67^{ns}	0.06	0.95

FCPS-s = Family-Centered Practice Scale for Spanish Parents of Children with autism spectrum disorder; M = Mean; SD = Standard Deviation; Min = Minimum; Max = Maximum; $p < 0.01$; K-S = Kolmogorov-Smirnov test; A = Asymmetry; K = Kurtosis; SD = Standard deviation of error of asymmetry and kurtosis; ω = Omega coefficient; α = Cronbach alpha; t = Test statistic at 6 months; η^2 = Eta squared; Pow. = Power of the test.

different ways. This may show that mothers and fathers respond differently to the experience of raising a child with ASD (Mori et al., 2018; Totsika et al., 2011). However, it could also explain why parents may have much less contact with professionals than mothers and therefore have less experience with early care professionals. This fact may not be appreciated for the sensitivity of the scale, and it may be mistakenly mixed up with the fact that less contact translates into a less accurate description of practices with professionals. Regardless of this issue, assessing the psychological health of mothers is key, since providing them with adequate information and services would increase their coping strategies and reduce their associated psychopathological symptoms (Calero-Plaza et al., 2017). Therefore, in the near future it would be advisable to analyse this gender difference in order to establish or not differentiated scales for parents.

There are several limitations to this study. One is that the convenience sampling method we used limits the generalizability of the findings. Another is that the adaptation of the FCPS-S for a particular population (parents of children with ASD) may also affect the generalization of results to samples of parents of children with an intellectual disability other than ASD. This aspect should be analyzed with a different population to confirm the suitability of this scale. Finally, the real test of whether FCP behave in the same or a different way among parents of children with ASD or another disability is to evaluate whether variations in the use of FCP co-varies with outcomes of interest (e.g., parental stress, parent-child interactions, family coherence). These types of variables are not evaluated, and therefore arguing that there is something special about FCP with families of children with ASD is not defensible. However, it is the beginning of a line of work that seeks to confirm whether these types of disorders require different attention from family-centered planning.

4. Conclusions

In conclusion, this study contributes the validation in a Spanish population of a reliable, valid scale useful for measuring la PCF as the most effective intervention model to support families with children with ASD who are cared for in an early care setting. An effective practice of this family approach is a great challenge for all professionals in the field of Early Intervention and involves the implementation of a set of information, behaviors, values, competencies and skills that improve family relationships.

The scale shows good fit indices in the factor structure. The results also show acceptable consistency indices for global score, and also for the subscales. The PCPS-S was translated into Spanish and its reliability and validity were assessed using a convenience sample of families with children with ASD receiving early childhood interventions. To our knowledge, this is the first study that has attempted to assess the validity and reliability of this scale, exploring its structural characteristics and confirming the most appropriate structure in this sample. The FCPS-S as a whole has good internal consistency, and has appropriate psychometric properties.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A Spanish version of family centered practices scale for parents of ASD (FCPS-S)

This scale has been designed to be completed by the parents or main carers of the child with ASD attending early childhood intervention

Lea cuidadosamente cada una de las siguientes afirmaciones. A continuación, elija la respuesta que mejor describa su situación. 1 = Nunca; 2 = Ocasionalmente; 3 = Algunas veces; 4 = Algunas veces; 4 = Generalmente; 5 = Siempre/Please read each of the following statements carefully. Then choose the answer that best describes your situation. 1 = Never; 2 = Occasionally; 3 = Sometimes; 4 = Usually; 5 = Always.

Relational Practices subscale (RP):

1.- The staff really listen to my concerns and requests /Los profesionales realmente escuchan mis preocupaciones o demandas

2.- The staff see my child and my family in a positive healthy way /Los profesionales ven a mi hijo/a y a mi familia de manera positiva y saludable

3.- The staff understand my child's and family's situation/El personal comprende la situación de mi familia y de mi hijo.

4.- The staff recognize my child's and family's strengths /Los profesionales reconocen las fortalezas de mi hijo/a y mi familia

5.- The staff do what they promise to do/El personal hace lo que promete.

6.- The staff recognize the good things I do as a parent /Los profesionales reconocen las cosas buenas que hago como padre/madre

Participative Practices subscale (PP):

7.- The staff provide me with the information I need to be able to make good choices /Los profesionales me proporcionan la información que necesito para poder tomar buenas decisiones

8.- The staff are responsive to my requests for advice and help /Los profesionales son sensibles a mis peticiones de asesoramiento o ayuda

9.- The staff help me to be an active part of getting required resources and support /Los profesionales nos ayudan para que participemos de forma activa a la hora de conseguir los recursos y los apoyos que deseamos

10.- The staff are flexible when my family situation changes /Los profesionales son flexibles cuando mi situación familiar cambia

11.- The staff help me learn how to do things that benefit my child and family /Los profesionales me ayudan a aprender a hacer cosas que benefician a mi hijo/a y a mi familia

12.- The staff support me when I make decisions /Los profesionales me apoyan cuando tomo una decisión

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