

Supportive Dyadic Coping and Psychological Adaptation in Couples Parenting Children with Autism Spectrum Disorder: The Role of Relationship Satisfaction

Cristina García-López^{1,2} · Encarnación Sarriá¹ · Pilar Pozo¹ · Patricia Recio¹

Published online: 9 August 2016
© Springer Science+Business Media New York 2016

Abstract In couples parenting children with Autism Spectrum Disorder (ASD), the partner becomes a primary source of support for addressing the additional parenting demands. The purpose of this study was to examine the associations between supportive dyadic coping and parental adaptation, and to assess the mediating role of relationship satisfaction between them. Seventy-six couples parenting children with ASD participated. Data were gathered through self-report questionnaires and an Actor-Partner Interdependence Mediation Model was used. Mothers' and fathers' supportive dyadic coping was related to both their own and partner's relationship satisfaction and parental adaptation. Findings also revealed the mediation role of relationship satisfaction, in the association between supportive dyadic coping and parental adaptation. The implications for research and clinical practice are discussed.

Keywords Autism spectrum disorder · Dyadic coping · Relationship satisfaction · Stress · Psychological well-being · Actor-partner interdependence model

Introduction

Autism Spectrum Disorder (ASD) has lifelong implications for the functioning of the diagnosed child and his or her family. Highly replicated findings point to increased levels of parental stress in families raising children with ASD (Dabrowska and Pisula 2010; Hastings 2003; Hayes and Watson 2013; Little 2002; Pozo and Sarriá 2015), especially when the child shows behavior problems (Hastings and Brown 2002; Rezendes and Scarpa 2011; Tomanik et al. 2004; Zaidman-Zait et al. 2014). Conversely, family adaptability influences the outcomes of individuals with ASD (Baker et al. 2011).

Beyond studies focused on negative adaptation, evidence of positive outcomes in families of individuals with ASD supports family resilience theories (Bayat 2007; Pakenham et al. 2011; Walsh 1996). Therefore, it is crucial to identify the protective factors of positive adaptation. To date, evidence indicates that individual coping strategies play a protective role for families (Dabrowska and Pisula 2010; Hastings et al. 2005; McCubbin and Patterson 1983), although few studies have explored more additional strategies, such as dyadic coping.

Individual and Dyadic Coping

Coping strategies refer to a group of behavioral or cognitive efforts aimed at reducing stress levels (Lazarus and Folkman 1984). Researchers have proposed many classifications of coping strategies. Among these, we want to

✉ Cristina García-López
cgarcialo@hsjdbcn.org

Encarnación Sarriá
esarria@psi.uned.es

Pilar Pozo
ppozo@psi.uned.es

Patricia Recio
reciop@psi.uned.es

¹ Faculty of Psychology, IMIENS, UNED: National University of Distance Education, Madrid, Spain

² Learning Disabilities Unit (UTAE), Neuropediatrics Department, Hospital Sant Joan de Déu, c/Entença 154, 08029 Barcelona, Spain

emphasize the following two main ways to cope with stress: individual coping and dyadic coping (Bodenmann et al. 2006). Individual coping has been widely researched and is usually divided into problem-focused or emotion-focused strategies. In the general population, emotion-focused coping (e.g., avoidance, engaging in ruminating, blaming oneself) has been positively correlated with health problems (e.g., anxiety, depression), while problem-focused coping (e.g., time-management, obtaining social support) has been negatively correlated with these conditions (Cohan et al. 2006). Within families raising children with ASD, the same pattern has been found, as parents who adopt active avoidance coping strategies such as denial, distraction or guilt report more stress than those who implement positive and problem-focused strategies (Dunn et al. 2001; Essex et al. 1999; Hastings et al. 2005; Pozo and Sarriá 2014; Smith et al. 2010). Further studies suggest the existence of gender differences in coping styles. For instance, Dabrowska and Pisula (2010) found that mothers used more emotion-oriented and social diversion strategies compared with fathers, and Pozo et al. (2014) indicated that mothers more frequently used positive strategies oriented to the problem compared with fathers.

In contrast, dyadic coping has been relatively neglected, even though the literature on ASD-related parental adaptation recognizes the marital relationship as a primary source of support among married couples (Benson and Kersh 2011; Hartley et al. 2011; Weitlauf et al. 2012). In couples parenting children with ASD, the partner becomes a primary source of emotional and instrumental support for addressing the additional parenting demands; thus, partner support should be seriously considered when helping parents adapt.

From a systemic-transactional perspective (Bodenmann 1997, 2005), dyadic coping includes both stress expression and dyadic support (Bodenmann 2000). Specifically, it refers both to one partner's attempt to help reduce the external stress perceived by his or her partner (i.e., as a result of work strain, social obligations, or parenting a child with ASD) and a common endeavor for coping with the stress derived from the relationship (i.e., differing desires or goals). The stress-coping process is considered a cycle consisting of (1) the stress expression by the stressed person, (2) the perception of stress by the partner, and (3) the partner's coping reaction to the stressed person's behavior (Bodenmann 2008).

Specifically, Bodenmann and Cina (2005) differentiate between positive and negative dyadic coping. On the one hand, positive forms of dyadic coping refer to supportive dyadic coping (such as providing practical advice or offering empathic understanding), common dyadic coping (such as joint problem solving, sharing feelings, or relaxing together), and delegated dyadic coping (such as one partner

explicitly asking the other for support and consequently agreeing a new division of tasks). On the other hand, negative dyadic coping includes hostile dyadic coping (such as distancing, mocking, or minimizing the seriousness of the partner's stress), ambivalent dyadic coping (such as one partner supporting the other reluctantly, as if his or her contribution was unnecessary) and superficial dyadic coping (such as asking questions about the partner's feelings without listening, or providing support that lacks empathy). Although previous findings have emphasized the importance of dyadic coping, few dyadic variables have been included in family stress models (Kenny et al. 2006).

Relationship Satisfaction

In addition to the effect that parenting a child with ASD has on parent's individual well-being, several studies suggest that the couple relationship is also compromised. Different authors have found that parents of children with ASD report lower dyadic consensus and lower levels of marital satisfaction compared with parents of typically developing children (Brobst et al. 2009; Gau et al. 2012; Higgins et al. 2005). In particular, Gau et al. (2012) found that mothers of children with ASD reported more psychopathology and marital dissatisfaction and lower levels of family cohesion and adaptability compared with mothers of children without ASD. Furthermore, Hartley et al. (2010) reported that marital problems persist during the child's adolescence or young adulthood in families parenting children with ASD. These authors also found that the probability of divorce among parents of people with ASD (23.5 %) is higher than that of the general population (13.8 %). However, a later study in the United States in which 77,911 families of children with ASD were interviewed indicated that children with ASD were equally likely to live in households with two biological or adoptive parents when compared with children without ASD (Freedman et al. 2012). Furthermore, there is evidence that some parents feel even more bonded as a result of caring for their child with ASD (Marciano et al. 2015).

In line with this, Hock et al. (2012) view ASD as a crucible for couples and identify three phases of the marital relationship: the ASD crucible, tag team and deeper intimacy and commitment. In the first phase the child with ASD is viewed as a stressor to the couple relationship. The couple is "tested" and parents describe a dichotomous outcome: either "make it or break it", "sink or swim". During the tag team phase the focus is posed on the parental role and the couple relationship becomes secondary. A reorganization of the family roles is required during this period. Finally, two factors precipitate the deeper intimacy and commitment phase: the lack of intimacy and the fact that parents begin to believe that looking after the couple

relationship is beneficial to the child. This phase involves renewing the commitment and helps couples to cope with the situation dyadically.

Relationship satisfaction has been traditionally studied as an outcome measure, but several authors have suggested its role as a resource within the couple relationship that can promote individual and family well-being (Brown 2012; Hartley et al. 2011; Lickenbrock et al. 2011; Weitlauf et al. 2012). Within families of children with intellectual disability, Essex (2002) found that marital satisfaction was associated with feelings of closeness to the child in both progenitors. In ASD families, Hartley et al. (2011) reported that parents who experienced above-average marital satisfaction were less hampered compared with those who reported below-average marital satisfaction, while Benson and Kersh (2011) found that the marital relationship predicted maternal adjustment in both cross-sectional and longitudinal analyses. In addition, past research exploring the mediator role of relationship satisfaction has found that it mediates associations between positive perceptions and maternal well-being (Lickenbrock et al. 2011).

In community samples, several studies have yielded evidence that dyadic coping plays a relevant role in marital quality and stability (Bodenmann 2005; Bodenmann and Cina 2005; Cutrona 1996; Goodman 1999). In one study, Bodenmann (2005) demonstrated that the relationship between dyadic coping and relationship satisfaction was facilitated through two separate mechanisms. First, dyadic coping acts as a moderator between stress and marital satisfaction. This function is stress related, as dyadic coping acts as an additional resource for coping with stress that supplements each partner's own personal coping strategies. Second, dyadic coping strengthens feelings of mutual trust and intimacy and beliefs that the relationship is helpful and supportive. This second function is relationship related, as it implies investment in the close relationship. In another study by this research group, mothers' marital quality was predicted both by their own dyadic coping and that of their partner, while for men, only their own dyadic coping was predictive of marital quality (Bodenmann et al. 2006). Goodman (1999) also found more beneficial associations between dyadic coping and marital satisfaction for women than for men. However, a recent study by Ekas et al. (2015) found that, within families parenting individuals with ASD, both fathers' and mothers' partner social support positively impacted personal and partner relationship satisfaction.

Taken together, the findings of previous studies are gradually revealing the importance of dyadic coping and relationship satisfaction as resources that promote a couple's adaptation within stressful situations. However, in the field of family adaptation when parenting an individual with ASD, most studies conducted to date have important limitations, such as the underrepresentation of fathers

(Braunstein et al. 2013; Johnson and Simpson 2013), the lack of dyadic variables (Kenny et al. 2006) and the limited use of conceptual frameworks and statistical methods that account for dyadic interdependence (García-López et al. 2016a). We therefore intend to overcome these limitations by improving the methodological approach followed in past studies and examining the associations among supportive dyadic coping, relationship satisfaction, and psychological adaptation in families parenting individuals with ASD.

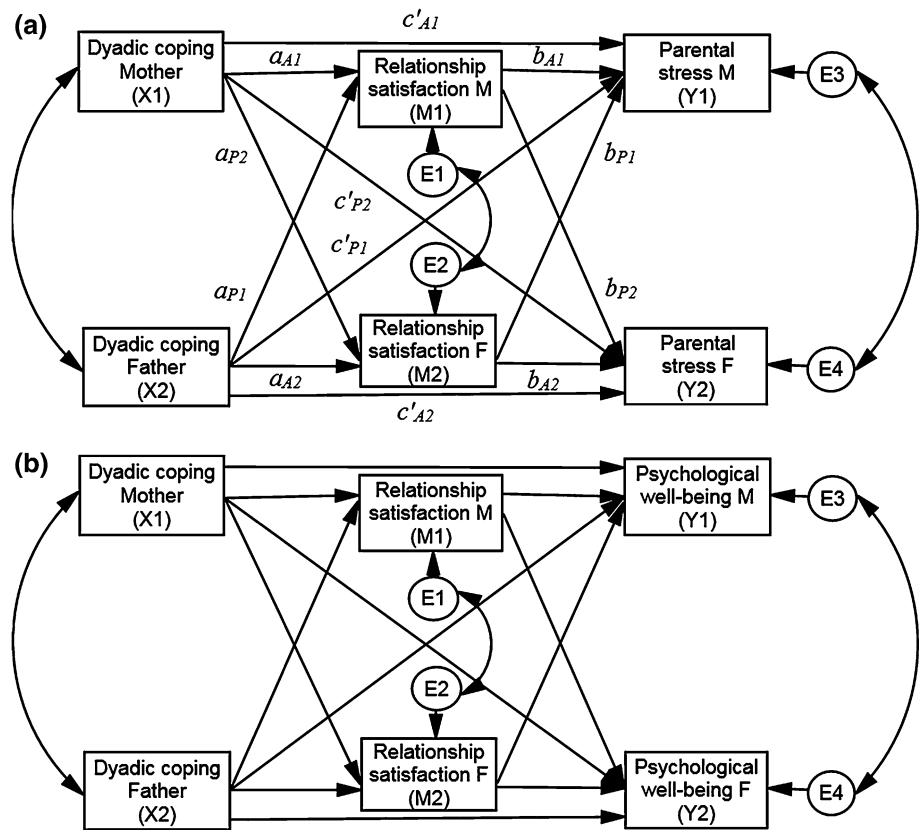
The Current Study

The current study used an extended version of the Actor-Partner Interdependence Model (APIM; Kenny 1996; Kenny and Cook 1999) enabling the assessment of mediation in dyadic data by introducing a third variable pair and testing an APIM mediation model, or APIMeM (Lederermann and Bodenmann 2006). It consists of three pairs of measured variables, represented by rectangles, and two pairs of error terms, represented by circles (see Fig. 1a). The X variables represent the predictor variables, the M variables represent the mediators, and the Y variables the outcomes. The two members of the dyads are designated 1 and 2. The model contains six actor effects (horizontal) and six partner (diagonal) effects indexed by A and P, respectively. Note that the error variances (E) between members' corresponding endogenous variables are correlated in the figure to account for the nonindependence.

In our study, this model allowed us to estimate the effects of the predictor variable (supportive dyadic coping) on the outcome variables, namely parental stress (Fig. 1a) and psychological well-being (Fig. 1b), and the role of relationship satisfaction as a mediator between dyadic coping and stress or psychological well-being. Actor and partner effects and mediation effects were calculated. *Actor effects* estimate the degree to which a predictor variable of one parent influences his/her own outcome, whereas *partner effects* measure the extent to which one parent's predictor variable influences his/her partner's outcome.

Considering Bodenmann and colleagues' findings regarding the relationship between dyadic coping and relationship satisfaction, we aimed to test whether a positive form of dyadic coping (i.e., supportive dyadic coping) strengthens feelings of mutual trust and intimacy and beliefs that the marital relationship is helpful and supportive within couples parenting children with ASD; moreover, we wanted to examine whether this improved relationship satisfaction predicts reduced parental stress levels and improved reports of psychological well-being. Accordingly, we expected to find: (a) actor effects of supportive dyadic coping on relationship satisfaction (Bodenmann 2005; Bodenmann and Cina 2005; Cutrona 1996;

Fig. 1 APIM mediation models with supportive dyadic coping as predictor variables, relationship satisfaction as mediators, and parental stress (a) or psychological well-being (b) as outcome variables. *M* mother, *F* father



Goodman 1999; Ekas et al. 2015), (b) actor effects of relationship satisfaction on parental adaptation—parental stress, psychological well-being—(Brown 2012; Hartley et al. 2011; Lickenbrock et al. 2011; Weitlauf et al. 2012), (c) partner effects of supportive dyadic coping on relationship satisfaction (Ekas et al. 2015), (d) partner effects of relationship satisfaction on parental adaptation—parental stress, psychological well-being—(Benson and Kersh 2011; Hartley et al. 2011; Lickenbrock et al. 2011), and e) mediation between supportive dyadic coping and parental adaptation (parental stress, psychological well-being) by relationship satisfaction (Bodenmann 2005; Brown 2012). The tested models are shown in Fig. 1.

Method

Participants

A cross-sectional design using a convenience sampling was conducted. Families who attended the Learning Disabilities Unit (UTAE) at Hospital Sant Joan de Déu (Barcelona), an autism-specific school in Barcelona (Carrilet), and the Spanish Professional Association of Autism (AETAPI) were invited to voluntarily participate in the study. This study was approved by the Bioethics Committee for

Research of our University, we obtained informed consent from both parents and guaranteed their anonymity and confidentiality. A booklet of questionnaires was given to parents either through the professional who worked with their child or by email, depending on their preference. The instructions explicitly asked parents to complete the questionnaires separately, either in the clinical setting or at home, and return them within a maximum of 15 days. The time required to answer all of the questionnaires ranged from 45 min to 1 h. Upon completion, we offered to send the parents the results of their personal psychological adaptation profiles by e-mail. Only 5 couples asked for them and one required further information by telephone.

A total of 87 couples were invited to join the present study, but 11 (13 %) declined to participate. The final sample consisted of 76 couples (152 fathers and mothers) parenting children diagnosed with ASD. The inclusion criteria were being a biological parent of a child with ASD aged 3–18 years and both members of the couple living in the same home. Eighty-five percent of the couples were married, while 15 % lived together but were not married. Diagnoses were made by a qualified psychologist according to *Diagnostic and Statistical Manual of Mental Disorders*, revised text criteria (DSM-IV-TR, APA 2000) or updated criteria (DSM-5, APA 2013), depending on the current criteria at the time of the diagnosis.

The parent's ages ranged from 31 to 57 years. The mean age of the mothers ($M = 41.6$, $SD = 5.2$) and the fathers ($M = 42.9$, $SD = 5.4$) did not significantly differ ($p > .05$). However, we found a significant difference in employment ($\chi^2 = 26.62$, $p < .001$) because most of the fathers were employed full time (83 %), while 49 % of the mothers worked full-time. The children age ranged from 3 to 17 years ($M = 7.74$, $SD = 3.4$), and most attended an ordinary school. The most frequent diagnosis was ASD, followed by autistic disorder (see Table 1). The mean age at ASD diagnosis was 5.05 years ($SD = 2.59$), and the mean time elapsed since diagnosis was 2.68 years ($SD = 2.48$). The children with ASD in our sample showed mild severity ($M = 34.46$, $SD = 9.1$) as measured by the *Childhood Autism Rating Scale* (CARS; Schopler et al. 1988).

Table 1 Participants' sociodemographic characteristics

Characteristic	Fathers % (n)	Mothers % (n)	Family % (n)
Education level			
Primary school	5.3 (4)	5.3 (4)	
Secondary school	42.1 (32)	32.9 (25)	
University grade	52.7 (40)	61.8 (47)	
Employment			
Full time ¹	82.9 (63)	48.7 (37)	
Part time ²	1.3 (1)	21.1 (16)	
Unemployed	6.6 (5)	22.4 (17)	
Other	9.2 (7)	7.9 (6)	
Family income ³ (euros)			
<500			13.2 (10)
500–850			27.6 (21)
850–1200			23.7 (18)
1200–1800			15.8 (12)
>1800			19.7 (15)
Diagnosis individual ASD			
ASD (DSM-5 criteria)			46.1 (35)
Autistic disorder			21.1 (16)
Asperger syndrome			14.5 (11)
PDD-NOS			18.4 (14)
Type of education center			
Ordinary school			63.2 (48)
Special education school			29.0 (22)
Autism specific school			7.9 (6)

¹ Full Time: 40 h per week

² Part Time: 20 h per week

³ Family income: monthly income per number of family members

Instruments

We developed a specific questionnaire to gather sociodemographic variables. Because this is part of a larger study, the parents answered a total of nine questionnaires; for the present study, we used five of these questionnaires. Additionally, professionals rated ASD severity (CARS; Schopler et al. 1988).

ASD Severity

The Childhood Autism Rating Scale (CARS; Schopler et al. 1988). Spanish adaptation by García-Villamizar and Polaino-Lorente (1992). The child's psychologist completed this scale, and we used the global score as a measure of the severity of the ASD disorder. The scale includes 15 items with responses ranging from 1 (age-appropriate behavior) to 4 (severe or profoundly abnormal behavior). Scores higher than 30 indicate the presence of ASD. The Spanish adaptation of the CARS has both good internal consistency ($\alpha = .98$) and concurrent validity (Kappa coefficient = .78). The internal consistency in our study was .87.

Supportive Dyadic Coping

The Dyadic Coping Inventory (DCI; Bodenmann 2000), validated in German (Bodenmann 2008). The Spanish version was translated and provided by Falconier and Bodenmann. This inventory includes 37 items grouped into eight subscales that assess dyadic coping and communication within stressful conditions. The DCI has been considered a suitable tool for use within the APIM framework (Ledermann et al. 2010). For the purposes of our study, we selected the *supportive dyadic coping* by the partner subscale (5 items), which examines the personal perception a parent has regarding the provision of practical advice and empathic understanding by his/her partner. Items are rated on a 5-point scale (from 1 = very rarely, to 5 = very often). Higher scores indicate better dyadic coping. All DCI subscales have shown good internal consistency ($\alpha = .75-.91$) (Bodenmann 2000). In the present sample, the internal consistency for supportive dyadic coping by the partner was .89.

Relationship Satisfaction

The Dyadic Adjustment Scale, Spanish version (DAS; Spanier 1976). Translated by Bornstein and Bornstein (1988) and validated by Santos-Iglesias et al. (2009). To measure relationship satisfaction, we used the 13-item version of the DAS proposed by Santos-Iglesias et al. (2009). This scale comprises a total score and three

subscales: consensus, satisfaction and cohesion. For the purposes of our study, we used the satisfaction subscale (5 items). The internal consistency of the adapted version was .83. In the current sample, the internal consistency of the satisfaction subscale was .78.

Parental Stress

The *Parental Stress Index* (PSI; Abidin 1995). Adapted to Spanish by Díaz-Herrero et al. (2011). We used the reduced version of the *Parental Stress Index (Parental Stress Index–Short Form—PSI/SF)*, which comprises three subscales (parental distress, dysfunctional parent–child interaction, and difficult child) and is scored on a 5-point Likert scale (from 1 = completely disagree to 5 = completely agree). According to Zaidman-Zait et al. (2010), the items in the parent distress subscale are useful for assessing the severity of distress among parents of individuals with ASD. However, the items in the parent–child dysfunctional interactions and difficult child subscales are less informative for this population. Following the recommendation of Zaidman-Zait et al. (2010), we used the parent distress subscale score as a measure of parental stress. This subscale comprises 12 items and showed good internal consistency in the original study of the Spanish version ($\alpha = .82$) and in our study ($\alpha = .87$).

Psychological Well-Being

The *Brief Psychological Well-Being* (Ryff 1989; Ryff and Keyes 1995). Adapted to Spanish and validated by Díaz et al. (2006). The Spanish version by Díaz et al. (2006) consists of 29 items scored on a 6-point scale (from 1 = completely disagree, to 6 = completely agree). It measures multiple facets of psychological well-being—namely, autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. We used the global score, which showed good levels of internal consistency in the original study and in our sample ($\alpha = .84$ and $\alpha = .92$, respectively).

Data Analysis

First, the differences between the mothers and fathers were analyzed with paired *t* test and a set of bivariate correlations. To test the hypotheses, we used an extended version of the APIM. Three statistical modeling techniques can be used to estimate the APIM: pooled regression modeling, multilevel modeling and structural equation modeling (SEM). We used SEM because according to Kenny et al. (2006), with distinguishable dyads, SEM is the simplest and most straightforward analytic method for estimating the APIM. The data were analyzed using AMOS 21

(Arbuckle 2006), and separate models were conducted for parental stress and psychological well-being.

Five fit indexes were used to test the goodness of fit of the proposed models. Chi square is suitable for small samples, such as our research. The model shows a good fit when its probability is not significant ($p > .05$). Chi square degree ratio (χ^2/df) in the range of 3–1 is indicative of an acceptable fit between the hypothesized model and the sample data (Marsh and Hau 1996). We also considered the root-mean square error of approximation (RMSEA), the comparative fit index (CFI) and the normed fit index (NFI) (Bollen and Long 1993). RMSEA values over 0.10 are usually interpreted as a sign of unacceptable model fit whereas values below 0.05 indicate a close model fit. Both CFI and NFI are bound between 0 and 1 and values between 0.90 and 0.95 indicate an acceptable model fit, with values greater than 0.95 indicating a close model fit. Finally, the Chi squared difference (likelihood ratio) statistic ($\Delta\chi^2$) was used to compare the fit for two nested models. Significant values on the Chi squared difference test indicate that the constraints on the more restricted model may be too strict and that results of the less restricted model should be accepted, following the recommendation by Cheung and Rensvold (2002).

To test for mediation, we followed the procedure suggested by Holmbeck (1997). First, we assessed the direct effect, which tests the effects of the predictor variable on the outcome variable, with all indirect paths set to zero. There must be significant effects of supportive dyadic coping on parental stress or psychological well-being. Second, we assessed the direct effects of the predictor on the mediator with all the remaining paths set to zero and the direct effects of the mediator on outcomes, with all the remaining paths set to zero. All path coefficients must be significant; in our study, this required significant effects of supportive dyadic coping on relationship satisfaction and from relationship satisfaction to parental stress or psychological well-being. Third, we assessed the reduction in the strength of the direct path from the predictor to outcomes in the presence of mediator with all parameters allowed to vary to determine whether the direct path decreased (partial mediation) or vanished completely (fully mediation). The final step involved comparing the fit of the model under two conditions: (a) when the direct path (predictor to outcome) is constrained to zero and (b) when the direct path is not constrained. The improvement in fit was assessed by comparing the Chi squared values for the two models. If there is mediation effect, the addition of the direct path to the constrained model should not improve the fit (non-significant difference in values of χ^2).

Results

Preliminary Analyses

The descriptive statistics and paired *t* test results for the studied variables are presented in Table 2. There were significant differences between the mothers and fathers with respect to parental stress, with the mothers reporting higher stress levels. The effect size for this difference was small (.29), according to *Cohen's d*.

We assessed the associations between supportive dyadic coping, relationship satisfaction, parental stress and psychological well-being through bivariate correlations. Table 3 shows the correlations between the studied variables. All of the correlations were significant for both the mothers (above the diagonal) and the fathers (below the diagonal). Parental stress and psychological well-being were negatively associated. Supportive dyadic coping and relationship satisfaction were positively associated with one another and with psychological well-being and were negatively associated with parental stress. Table 4 shows the correlations between the mothers' and fathers' scores for the studied variables. The correlations between the mothers' and fathers' scores on the same variable were significant for all studied variables, but some differences in patterns of associations were found among the correlations with the other partner's variables. The mother's relationship satisfaction was positively associated with the father's psychological well-being and negatively with the father's parental stress, while the father's relationship satisfaction did not present a significant association with either the mother's psychological well-being or parental stress.

Hypothesized Model

Estimating the APIM mediation models with direct effects between the predictor and outcome variables, which were just identified (i.e., $df = 0$), none of the four direct effects were significant in either model (parental stress, psychological wellbeing). This is consistent with the assumption of complete mediation, and therefore, we excluded these four insignificant direct effects, following Ledermann et al.

(2010). When we tested these models, both the parental stress model ($\chi^2 = 4.81$, $p = .307$; $\chi^2/df = 1.20$; CFI = .993; NFI = .964; RMSEA = .052; p:p ratio = 3.3) and the psychological well-being model ($\chi^2 = 5.59$, $p = .232$; $\chi^2/df = 1.40$; CFI = .987; NFI = .961; RMSEA = .073; p:p ratio = 3.3) showed good fit. For each model, the actor effects for the fathers and mothers are reported, as are the partner effects running from the fathers to the mothers and the partner effects running from the mothers to the fathers (see Figs. 2, 3).

Actor and Partner Effects

In both the parental stress and psychological well-being models, actor effects were found in the relationship between supportive dyadic coping and relationship satisfaction for both the mothers and the fathers. An extra actor effect was found for the mothers because relationship satisfaction was negatively associated with their own parental stress (see Fig. 2). Moreover, another actor effect was found for both the mothers and the fathers in that relationship satisfaction was positively associated with their own psychological well-being (see Fig. 3).

Regarding partner effects, in both the parental stress and the psychological well-being models (see Figs. 2, 3), there were two partner effects that were similar for the mothers and the fathers. Specifically, we found a positive relationship between the mother's supportive dyadic coping and the father's relationship satisfaction and between the father's supportive dyadic coping and the mother's relationship satisfaction. As the stress model shows, an extra significant partner effect indicated the negative association between the mother's relationship satisfaction and the father's parental stress.

Mediation Analysis

We tested the mediations following Holmbeck's (1997) steps, as previously described, and found two mediations in each model.

In the parental stress model, only two of the eight possible mediations fit the first two conditions of the

Table 2 Comparisons of the studied variables between fathers and mothers

Variable	Fathers ($n = 76$)		Mothers ($n = 76$)		Paired <i>t</i>	<i>p</i>	<i>Cohen's d</i>
	Mean	<i>SD</i>	Mean	<i>SD</i>			
Supportive dyadic coping	17.40	4.42	16.75	4.60	1.22	.227	.13
Relationship satisfaction	18.51	3.75	18.05	3.72	1.15	.256	.06
Parental stress	29.91	8.92	32.96	9.87	-2.50*	.015	.29
Psychological well-being	127.82	19.33	128.31	19.97	-.20	.844	.02

* $p < .05$

Table 3 Pearson correlations between studied variables in mothers and fathers

	1	2	3	4
1. Supportive dyadic coping	–	.627**	–.286*	.346**
2. Relationship satisfaction	.515**	–	–.350**	.432**
3. Parental stress	–.381**	–.263*	–	–.578**
4. Psychological well-being	.383**	.360**	–.687**	–

Values above the diagonal are for mothers and those below the diagonal are for fathers

* $p < .05$; ** $p < .01$

Table 4 Pearson correlations between mothers' and fathers' scores for studied variables

Variables	1(M)	2(M)	3(M)	4(M)
1. Supportive dyadic coping (F)	.406**	.562**	–.201	.328**
2. Relationship satisfaction (F)	.419**	.560**	–.065	.163
3. Parental stress (F)	–.210	–.363**	.362**	–.352**
4. Psychological well-being (F)	.277*	.287*	–.265*	.387**

* $p < .05$; ** $p < .01$

F father, M mother

Fig. 2 APIM mediation model testing the association between supportive dyadic coping and parental stress via relationship satisfaction. *M* mother, *F* father. ** $p < .01$; * $p < .05$

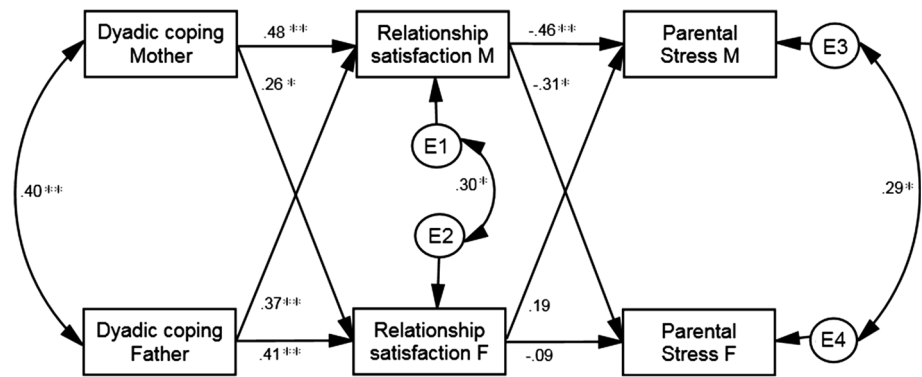
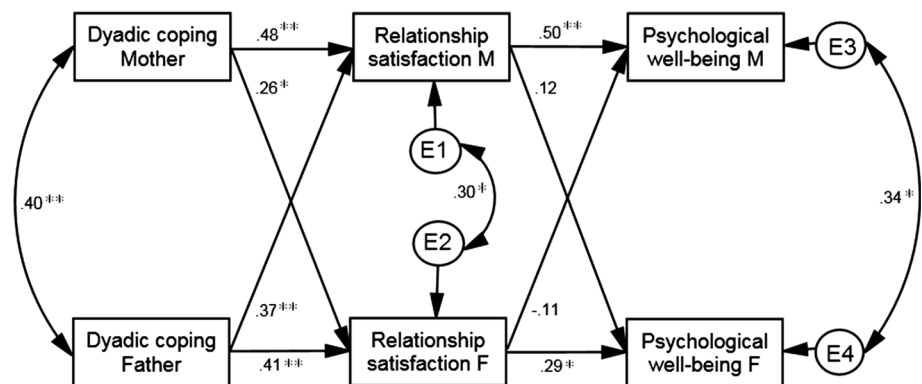


Fig. 3 APIM mediation model testing the association between supportive dyadic coping and psychological well-being via relationship satisfaction. *M* mother, *F* father. ** $p < .01$; * $p < .05$



procedure: (a) a significant direct effect of supportive dyadic coping on parental stress, with all indirect paths set to zero; (b) a significant effect of supportive dyadic coping on relationship satisfaction and a significant effect of relationship satisfaction on parental stress. As the parental stress model shows (see Fig. 2), there were two indirect effects through mother's relationship satisfaction: first, the

mothers' supportive dyadic coping was positively related to their own relationship satisfaction, which in turn was negatively related to their own parental stress. Second, the fathers' supportive dyadic coping was positively related to the mothers' relationship satisfaction, which in turn was negatively related to the fathers' parental stress. To test the significance of the first mediation, we constrained the paths

from “mother’s supportive dyadic coping” to “mother’s relationship satisfaction” and from “mother’s relationship satisfaction” to “mother’s parental stress”, to be 0 in the direct model. The direct relationship between the mother’s supportive dyadic coping and her own parental stress was $-.25$ ($p < .05$), which decreased to $-.13$ ($p > .05$) when mother’s relationship satisfaction was introduced into the model (total mediation). When the direct path from the mother’s supportive coping to the mother’s parental stress was constrained to zero, the $\Delta\chi^2$ difference test showed that the decrease in model fit was non-significant, $\Delta\chi^2 = 1.21$, $p > .05$, implying mediation of the relationship between the mother’s supportive dyadic coping and her own parental stress by her own relationship satisfaction. To test the significance of the second mediation, we constrained the paths from “father’s supportive dyadic coping” to “mother’s relationship satisfaction” and from “mother’s relationship satisfaction” to “father’s parental stress” to be 0 in the direct model. The direct relationship between father’s supportive dyadic coping and his own parental stress was $-.35$ ($p < .05$), which decreased to $-.26$ ($p > .05$) when mother’s relationship satisfaction was introduced into the model (total mediation). When the direct path from father’s supportive coping to father’s parental stress was constrained to zero, the $\Delta\chi^2$ difference test showed that the decrease in model fit was non-significant, $\Delta\chi^2 = 3.18$, $p > .05$, implying mediation of the relationship between father’s supportive dyadic coping and his own parental stress by mother’s relationship satisfaction.

In the well-being model, only two of the eight possible mediations fit the first two conditions of the procedure: (a) a significant direct effect of supportive dyadic coping on psychological well-being, with all indirect paths set to zero; (b) a significant effect of supportive dyadic coping on relationship satisfaction and a significant effect of relationship satisfaction on psychological well-being. In this model (Fig. 3), two indirect effects that were similar for mothers and fathers were found through relationship satisfaction: their own supportive dyadic coping was positively related to their own relationship satisfaction, which in turn was related to their own psychological well-being. To test for mediation, we followed the same procedure used in the parental stress model. The direct relationship between the mothers’ supportive dyadic coping and their own psychological well-being was $.26$ ($p < .05$), which decreased to $.10$ ($p > .05$) when the mothers’ relationship satisfaction was introduced into the model (total mediation). When the direct path from the mothers’ supportive coping to the mothers’ psychological well-being was constrained to zero, the $\Delta\chi^2$ difference test showed that the decrease in model fit was non-significant, $\Delta\chi^2 = 0.57$, $p > .05$, implying mediation of the relationship between a

mother’s dyadic coping and her own psychological well-being by her own relationship satisfaction. For the fathers, the direct relation between their supportive dyadic coping and their own psychological well-being was $.32$ ($p < .01$), which decreased to $.21$ ($p > .05$) when the fathers’ relationship satisfaction was introduced into the model (total mediation). When the direct path from the fathers’ supportive coping to the fathers’ psychological well-being was constrained to zero, the $\Delta\chi^2$ difference test showed that the decrease in model fit was non-significant, $\Delta\chi^2 = 2.57$, $p > .05$, implying mediation of the relationship between a father’s supportive dyadic coping and his own psychological well-being by his relationship satisfaction.

Discussion

Despite the challenges associated with parenting a child with ASD, some families not only overcome this situation but also adapt positively (Bayat 2007; Samios et al. 2012) and become more bonded after it (Marciano et al. 2015). Considering past research, supportive dyadic coping and relationship satisfaction emerge as variables that may be relevant to the process of parental adaptation. Therefore, the present study examined the associations between supportive dyadic coping and psychological adaptation in families parenting individuals with ASD, assessing the mediating role of relationship satisfaction between them. Hypothesis (a) mothers’ and fathers’ supportive dyadic coping predict their own relationship satisfaction (actor effects), (c) mothers’ and fathers’ supportive dyadic coping predict their partner’s relationship satisfaction (partner effects), and (e) mediation between supportive dyadic coping and parental adaptation by relationship satisfaction were fully supported, while hypothesis (b) mothers’ and fathers’ relationship satisfaction predict their own parental adaptation (actor effects) and (d) mothers’ and fathers’ relationship satisfaction predict their partner’s parental adaptation (partner effects) were partially supported.

Consistent with previous results, the mothers in our sample experienced higher levels of parental stress compared with the fathers (Dabrowska and Pisula 2010; Gau et al. 2012; Hastings 2003; Hastings and Brown 2002). The numerous associations found between the mothers’ and the fathers’ measures highlight the interdependent nature of couples’ psychological adaptation. These findings reinforce the idea that couples convey their thoughts, feelings and behaviors to each other (García-López et al. 2016b). For instance, our results showed that the more satisfied mothers were with their couple relationship, the more psychological well-being fathers reported.

Regarding actor effects, the results support our first hypothesis, as both the mothers’ and the fathers’

perceptions of supportive dyadic coping were positively associated with their own relationship satisfaction. This finding is consistent with the second mechanism of dyadic coping described by Bodenmann (2005), which claims that dyadic coping serves to strengthen feelings of mutual trust and intimacy and thoughts that the relationship is helpful and supportive. Beyond this assumption, which views relationship satisfaction as primarily an outcome measure, our findings support the role of relationship satisfaction as a resource of the couple's relationship that can promote psychological well-being within families parenting individuals with ASD. Particularly, the two symmetrical mediations of relationship satisfaction between supportive dyadic coping and psychological well-being strengthen the idea that the key to adaptation is to promote dyadic coping as a way to reinforce that the relationship is helpful, supportive and satisfactory because this is crucial for improving both parents' psychological well-being. Furthermore, the findings of mediation in the stress model indicate that mothers who experienced more supportive dyadic coping from their partner reported improved levels of relationship satisfaction, which in turn reduced their parental stress. These results regarding mediation effects support our fifth hypothesis and emphasize the importance of maintaining relationship satisfaction to enhance parental adaptation (especially in mothers).

Our second hypothesis was partially supported, as the mothers who felt more satisfied with their couple relationship experienced less parental stress and more psychological well-being, while the fathers reported improved psychological well-being but not reduced stress when their relationship satisfaction was high. Consequently, our results highlight that mothers' adaptation is clearly associated with their satisfaction with the couple relationship. For fathers, relationship satisfaction is a relevant predictor of their psychological well-being but not of their parental stress levels.

Regarding partner effects, both the mothers' and fathers' perception of supportive dyadic coping were positively associated with their partner relationship satisfaction, which supports our third hypothesis. Similarly, Ekas et al. (2015) found that within families parenting individuals with ASD, both fathers' and mothers' partner social support positively impacted personal and partner relationship satisfaction. In contrast, in non-clinical samples, Bodenmann's studies show that mothers' marital quality was predicted both by their own dyadic coping and that of their partner, while for men, only their own dyadic coping was predictive of marital quality (Bodenmann et al. 2006). A possible explanation for this gender difference between clinical and non-clinical samples could be associated with the fact when dealing with the challenges of parenting a child with ASD, transactional effects are accentuated

(García-López et al. 2016b). Having to make critical decisions regarding the child with ASD could make parents' relationship satisfaction more sensitive to their partner's comprehension and support regarding child's concerns.

Our fourth hypothesis was partly supported in the case of fathers, as their parental stress was significantly influenced by the mothers' relationship satisfaction. Furthermore, mediation tests indicated that the father's perception of supportive dyadic coping reduced their parental stress through the effect of mother's relationship satisfaction. This finding sheds light on the factors that affect fathers' parental stress. It would seem that when mothers are satisfied with their marital relationship, this fulfillment spills over to the couple and reduces not only the mother's own parental stress but also their partners'. These results revealed the importance of maintaining adequate relationship satisfaction among mothers, as this factor was associated with decreased parenting stress in both parents.

During the last decades, fathers are increasingly getting more involved both in care-giving tasks and intervention provision. Being more implicated and thus aware of the challenges traditionally faced by mothers would turn fathers more attentive and sensitive to mothers' well-being. This could therefore explain why fathers' stress is influenced by how satisfied mothers are with their relationship. In addition, dyadic coping and relationship satisfaction constitute relevant factors for both progenitors' adaptation, which also highlights the fact that fathers as well as mothers face challenges when raising their children with ASD and thus benefit from partner support.

This study contains some limitations that need to be taken into consideration. On the one hand, limitations related to the present sample that included parents who were able to access clinical services and who had the motivation and time to participate in the study. Another limitation is the small sample size in relation to the complexity of the model (participants:parameters ratio). Some authors (Bentler and Chou 1987) recommend a minimum ratio of 5:1 participants to parameters, and this study does not fit this criterion. However, two of the most recent simulations studies propose rather small sample sizes as enough (Sideridis et al. 2014; Wolf et al. 2013). This is because sample size adequacy depends on model complexity, but also on many other factors, such as missing data, statistical power, bias in the parameter estimates, and overall solution propriety. In any case, it is convenient to conduct further research with larger samples to verify these findings as well as to include other relevant variables, such as child and sociodemographic factors, in the model in order to test for possible moderator effects on the studied relationships.

On the other hand, although SEM is an innovative statistical approach for the analysis of dyadic data, causal inferences cannot be made. The interpretability of cause and effect patterns of relationships is limiting because of the cross-sectional nature of the study, and variables are likely to be inter-related. Moreover, the reliance on some self-report instruments and measurements (except for ASD severity, which was assessed by professionals) reduces measurement reliability. Despite these limitations, the results of this study highlight the relevance of supportive dyadic coping and relationship satisfaction for parental adaptation, and these findings yield relevant implications for theory, research and clinical practice.

The implications for theory and research include support for the use of the extended version of the APIM (APIMeM) in research on couples parenting children with ASD. This theoretical model was adjusted to the empirical data gathered in the present study and allowed us to examine actor, partner and mediation effects between the mothers and fathers. In addition, our findings support the importance of using statistical methods that account for interdependence when dyadic data are analyzed, such as SEM. Additionally, our study was able to highlight gender adaptation differences by equally representing mothers' and fathers' experiences, which strengthens the relevance of continuing to include both progenitors' experiences in future studies.

The implications for practice refer to the inclusion of supportive dyadic coping in family intervention programs. This involves training parents to seek support from their partner to manage the everyday challenges related to their child with ASD, such as receiving practical advice and empathic understanding. Additionally, clinicians should be aware of the importance of maintaining the couple relationship during stressful times (especially for mothers). As previously mentioned, Hock et al. (2012) view ASD as a crucible for couples and identify three phases of the marital relationship: the ASD crucible, tag team and deeper intimacy and commitment. Making couples aware of these phases and providing them strategies for coping with the challenges that arise at each stage could help them maintain a healthy relationship, which in turn will promote their psychological adaptation. As Lickenbrock et al. (2011) state, it is necessary to promote positive marital relationships that help parents negotiate their roles within the family unit and consider how the couple relationship can act as a support system for them. Past studies have identified two factors that couples found helped them maintain their marriages and that should be considered by clinicians: communication and shared foundational ideas about marriage (Ramish et al. 2014). Similarly, McCubbin and Patterson (1983) suggest that the most important internal resources of the family system are cohesion and

adaptability, communication patterns and mutual support. In sum, although treatments for families of children with ASD have disregarded parents' needs for decades (Blackledge and Hayes 2006), in an era when parental involvement in treatment programs has become crucial for children's outcomes, clinicians should be aware of parents' individual and dyadic needs and address them appropriately.

In conclusion, this study provides solid evidence of the actor and partner effects of supportive dyadic coping on relationship satisfaction and psychological adaptation. Furthermore, its findings reveal the mediation role of relationship satisfaction, as supportive dyadic coping improves parental adaptation through relationship satisfaction. These findings have implications for clinicians, who should consider strengthening supportive dyadic coping and maintaining adequate levels of relationship satisfaction (especially in mothers) as a means of promoting parental psychological adaptation.

Acknowledgments We are extremely grateful to all the families who generously participated in this study and to the Learning Disabilities Unit at Hospital Sant Joan de Déu, the Parent and Professional Associations of Autism and the education centers who participated in this research for facilitating the recruitment process.

Author Contributions Every author of the current work has importantly contributed to the design, implementation and drafting of the present research and paper.

Compliance with Ethical Standards

Conflict of interest All authors declare they have no conflicts of interest.

Ethical Approval This study was approved by the Bioethics Committee for Research of the National University of Distance Education (UNED).

Informed Consent Written informed consent was obtained from both parents, and participants were guaranteed anonymity and confidentiality.

References

- Abidin, R. R. (1995). *Parenting stress index manual*. Odessa, FL: Psychological Assessment Resources.
- American Psychiatric Association (APA). (2000). *Diagnostic and statistical manual of mental disorders: Text revision*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders 5*. Washington: American Psychiatric Association.
- Arbuckle, J. L. (2006). *AMOS (Version 7.0). User's guide*. Pennsylvania, PA: SPSS.
- Baker, J. K., Seltzer, M. M., & Greenberg, J. S. (2011). Longitudinal effects of adaptability on behavior problems and maternal depression in families of adolescents with autism. *Journal of Family Psychology*, 25(4), 601–609. doi:10.1037/a0024409.

- Bayat, M. (2007). Evidence of resilience in families of children with autism. *Journal of Intellectual Disability Research, 51*, 702–714. doi:[10.1111/j.13652788.2007.00960.x](https://doi.org/10.1111/j.13652788.2007.00960.x).
- Benson, P. R., & Kersh, J. (2011). Marital quality and psychological adjustment among mothers of children with ASD: Cross-sectional and longitudinal adjustment. *Journal of Autism and Developmental Disorders, 41*, 1675–1685. doi:[10.1007/s10803-011-1198-9](https://doi.org/10.1007/s10803-011-1198-9).
- Bentler, P. M., & Chou, C.-P. (1987). Practical issues in structural modeling. *Sociological Methods Research, 16*(1), 78–117. doi:[10.1177/0049124187016001004](https://doi.org/10.1177/0049124187016001004).
- Blackledge, J. T., & Hayes, S. (2006). Using acceptance and commitment training in the support of parents of children diagnosed with autism. *Child and Family Behavior Therapy, 28*(1), 1–18. doi:[10.1300/J019v28n01_01](https://doi.org/10.1300/J019v28n01_01).
- Bodenmann, G. (1997). Dyadic coping—A systemic-transactional view of stress and coping among couples: Theory and empirical findings. *European Review of Applied Psychology, 47*, 137–140.
- Bodenmann, G. (2000). *Stress und coping bei Paaren [Stress and coping in couples]*. Göttingen: Hogrefe.
- Bodenmann, G. (2005). Dyadic coping and its significance for marital functioning. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 33–49). Washington, DC: American Psychological Association.
- Bodenmann, G. (2008). *Dyadisches coping inventar (Dyadic Coping Inventory)*. Manual. Bern, Göttingen: Huber & Hogrefe.
- Bodenmann, G., & Cina, A. (2005). Stress and coping among stable-satisfied, stable-distressed and separated/divorced Swiss couples: A 5-year prospective longitudinal study. *Journal of Divorce and Remarriage, 44*(1), 71–89. doi:[10.1300/J087v44n01_04](https://doi.org/10.1300/J087v44n01_04).
- Bodenmann, G., Pihet, S., & Kayser, K. (2006). The relationship between dyadic coping and marital quality: A 2-year longitudinal study. *Journal of Family Psychology, 20*(3), 485–493. doi:[10.1037/0893-3200.20.3.485](https://doi.org/10.1037/0893-3200.20.3.485).
- Bollen, K. A., & Long, J. S. (1993). *Testing structural equation models*. Newbury Park, CA: Sage.
- Bornstein, P. H., & Bornstein, M. T. (1988). *Terapia de pareja. Enfoque conductual-sistémico*. Madrid: Pirámide.
- Braunstein, V. L., Peniston, N., Perelman, A., & Cassano, M. C. (2013). The inclusion of fathers in investigations of autistic spectrum disorders. *Research in Autism Spectrum Disorders, 7*, 858–865. doi:[10.1016/j.rasd.2013.03.005](https://doi.org/10.1016/j.rasd.2013.03.005).
- Brobst, J. B., Clopton, J. R., & Hendrick, S. S. (2009). Parenting children with autism spectrum disorders. The couple's relationship. *Focus on Autism and Other Developmental Disabilities, 24*(1), 38–49. doi:[10.1177/1088357608323699](https://doi.org/10.1177/1088357608323699).
- Brown, M. D. (2012). *Dyadic coping, relationship satisfaction, and parenting stress among parents of children with an Autism Spectrum Disorder: The role of the couple relationship*. Doctoral dissertation, Texas Tech University.
- Cheung, G. W., & Rensvold, R. B. (2002). Evaluation goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling, 9*(2), 233–255.
- Cohan, S. L., Jang, K. L., & Stein, M. B. (2006). Confirmatory factor analysis of a short form of the coping inventory for stressful situations. *Journal of Clinical Psychology, 62*, 273–283. doi:[10.1002/jclp.20211](https://doi.org/10.1002/jclp.20211).
- Cutrona, C. E. (1996). *Social support in couples*. Thousand Oaks, CA: Sage.
- Dabrowska, A., & Pisula, E. (2010). Parenting stress and coping styles in mothers and fathers of pre-school children with autism and Down syndrome. *Journal of Intellectual Disability Research, 54*(3), 266–280. doi:[10.1111/j.13652788.2010.01258.x](https://doi.org/10.1111/j.13652788.2010.01258.x).
- Díaz, D., Rodríguez-Carvajal, R., Blanco, A., Moreno-Jiménez, B., Gallardo, I., Valle, C., et al. (2006). Adaptación española de las escalas de bienestar psicológico de Ryff. *Psicothema, 18*, 572–577.
- Díaz-Herrero, A., López-Pina, J. A., Pérez-López, J., Brito de la Nuez, A. G., & Martínez-Fuentes, M. T. (2011). Validity of the parenting stress index-short form in a sample of Spanish fathers. *The Spanish Journal of Psychology, 14*(2), 990–997.
- Dunn, M. E., Burbine, T., Bowers, C. A., & Tantleff-Dunn, S. (2001). Moderators of stress in parents of children with autism. *Community Mental Health Journal, 37*, 39–52. doi:[10.1023/A:1026592305436](https://doi.org/10.1023/A:1026592305436).
- Ekas, N. V., Timmons, L., Pruitt, M., Ghilain, C., & Alessandri, M. (2015). The power of positivity: Predictors of relationship satisfaction for parents of children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 45*(7), 1997–2007. doi:[10.1007/s10803-015-2362-4](https://doi.org/10.1007/s10803-015-2362-4).
- Essex, E. L. (2002). Mothers and fathers of adults with mental retardation: Feelings of intergenerational closeness. *Family Relations, 51*(2), 156–165. doi:[10.1111/j.1741-3729.2002.00156.x](https://doi.org/10.1111/j.1741-3729.2002.00156.x).
- Essex, E. L., Seltzer, M. M., & Krauss, M. W. (1999). Differences in coping effectiveness and well-being among aging mothers and fathers of adults of mental retardation. *American Journal on Mental Retardation, 104*(6), 545–563. doi:[10.1352/0895-8017\(1999\)104<0545:DICEAW>2.0.CO;2](https://doi.org/10.1352/0895-8017(1999)104<0545:DICEAW>2.0.CO;2).
- Freedman, B. H., Kalb, L. G., Zablotzky, B., & Stuart, E. A. (2012). Relationship status among parents of children with autism spectrum disorders: A population-based study. *Journal of Autism and Developmental Disorders, 42*, 539–548. doi:[10.1007/s10803-011-1269-y](https://doi.org/10.1007/s10803-011-1269-y).
- García-López, C., Sarriá, E., & Pozo, P. (2016a). Multilevel approach to gender differences in adaptation in father-mother dyads parenting individuals with Autism Spectrum Disorder. *Research in Autism Spectrum Disorders, 28*, 7–16. doi:[10.1016/j.rasd.2016.04.003](https://doi.org/10.1016/j.rasd.2016.04.003).
- García-López, C., Sarriá, E., & Pozo, P. (2016b). Parental self-efficacy and positive contributions regarding autism spectrum condition: An actor-partner interdependence model. *Journal of Autism and Developmental Disorders, 46*(7), 2385–2398. doi:[10.1007/s10803-016-2771-z](https://doi.org/10.1007/s10803-016-2771-z).
- García-Villamizar, D., & Polaino-Lorente, A. (1992). Evaluación del autismo infantil: Una revisión de los instrumentos escalares y observacionales. *Acta Pediátrica Española, 50*(6), 383–388.
- Gau, S. S., Chou, M. C., Chiang, H. L., Lee, J. C., Wong, C. C., Chou, W. J., et al. (2012). Parental adjustment, marital relationship, and family function in families of children with autism. *Research in Autism Spectrum Disorders, 6*, 263–270. doi:[10.1016/j.rasd.2011.05.007](https://doi.org/10.1016/j.rasd.2011.05.007).
- Goodman, C. C. (1999). Reciprocity of social support in long-term marriage. *Journal of Mental Health and Aging, 5*(4), 341–357.
- Hartley, S. L., Barker, E. T., Seltzer, M. M., Floyd, F., Greenberg, J., Orsmond, G., et al. (2010). The relative risk and timing of divorce in families of children with an autism spectrum disorder. *Journal of Family Psychology, 24*(4), 449–457. doi:[10.1037/a0019847](https://doi.org/10.1037/a0019847).
- Hartley, S. L., Barker, E. T., Seltzer, M. M., Greenberg, J. S., & Floyd, F. J. (2011). Marital satisfaction and parenting experiences of mothers and fathers of adolescents and adults with autism. *American Journal on Intellectual and Developmental Disabilities, 116*(1), 81–95. doi:[10.1352/1944-7558-116.1.81](https://doi.org/10.1352/1944-7558-116.1.81).
- Hastings, R. P. (2003). Child behaviour problems and partner mental health as correlates of stress in mothers and fathers of children with autism. *Journal of Intellectual Disability Research, 47*, 231–237. doi:[10.1046/j.1365-2788.2003.00485.x](https://doi.org/10.1046/j.1365-2788.2003.00485.x).

- Hastings, R. P., & Brown, T. (2002). Behavioral problems of children with autism, parental self-efficacy, and mental health. *American Journal of Mental Retardation*, *107*(3), 222–232. doi:[10.1352/0895-8017\(2002\)107<0222:BPOCWA>2.0.CO;2](https://doi.org/10.1352/0895-8017(2002)107<0222:BPOCWA>2.0.CO;2).
- Hastings, R. P., Kovshoff, H., Brown, T., Ward, N. J., degli Espinosa, F., & Remington, B. (2005). Coping strategies in mothers and fathers of preschool and school-age children with autism. *Autism*, *9*, 377–391. doi:[10.1177/1362361305056078](https://doi.org/10.1177/1362361305056078).
- Hayes, S. A., & Watson, S. L. (2013). The impact of parenting stress: A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *43*(3), 629–642. doi:[10.1007/s10803-012-1604-y](https://doi.org/10.1007/s10803-012-1604-y).
- Higgins, D. J., Bailey, S. R., & Pearce, J. C. (2005). Factors associated with functioning style and coping strategies of families with a child with an autism spectrum disorder. *Autism*, *9*(2), 125–137. doi:[10.1177/1362361305051403](https://doi.org/10.1177/1362361305051403).
- Hock, R. M., Timm, T. M., & Ramisch, J. L. (2012). Parenting children with autism spectrum disorders: A crucible for couple relationships. *Child & Family Social Work*, *17*(4), 406–415. doi:[10.1111/j.1365-2206.2011.00794.x](https://doi.org/10.1111/j.1365-2206.2011.00794.x).
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology*, *65*(4), 599–610. doi:[10.1037//0022-006X.65.4.599](https://doi.org/10.1037//0022-006X.65.4.599).
- Johnson, N. L., & Simpson, P. M. (2013). Lack of father involvement in research on children with Autism Spectrum Disorder: Maternal parenting stress and family functioning. *Issues in mental health nursing*, *34*(4), 220–228. doi:[10.3109/01612840.2012.745177](https://doi.org/10.3109/01612840.2012.745177).
- Kenny, D. A. (1996). Models of non-independence in dyadic research. *Journal of Social and Personal Relationships*, *13*, 279–294. doi:[10.1177/02654407596132007](https://doi.org/10.1177/02654407596132007).
- Kenny, D. A., & Cook, W. L. (1999). Partner effects in relationships research: Conceptual issues, analytic difficulties, and illustrations. *Personal Relationships*, *6*, 433–448. doi:[10.1111/j.1475-6811.1999.tb00202.x](https://doi.org/10.1111/j.1475-6811.1999.tb00202.x).
- Kenny, D. A., Kashy, D., & Cook, W. L. (2006). *Dyadic data analysis*. New York: The Guilford Press.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Ledermann, T., & Bodenmann, G. (2006). Moderator-und mediator-effekte bei dyadischen daten: zwei erweiterungen des kteur-Partner- Interdependenz-Modells [Moderator and mediator effects in dyadic research: Two extensions of the actor-partner interdependence model]. *Zeitschrift für Sozialpsychologie*, *37*(1), 27–40. doi:[10.1024/0044-3514.37.1.27](https://doi.org/10.1024/0044-3514.37.1.27).
- Ledermann, T., Bodenmann, G., Gagliardi, S., Charvos, L., Verardi, S., Rossier, J., et al. (2010a). Psychometrics of the dyadic coping inventory in three language groups. *Swiss Journal of Psychology*, *69*, 201–212. doi:[10.1024/1421-0185/a000024](https://doi.org/10.1024/1421-0185/a000024).
- Ledermann, T., Bodenmann, G., Rudaz, M., & Bradbury, T. N. (2010b). Stress, communication, and marital quality in couples. *Family Relations*, *59*, 195–206. doi:[10.1111/j.1741-3729.2010.00595.x](https://doi.org/10.1111/j.1741-3729.2010.00595.x).
- Lickenbrock, D. M., Ekas, N. V., & Whitman, T. L. (2011). Feeling good, feeling bad: Influences of maternal perceptions of the child and marital adjustment on well-being in mothers of children with an autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *41*, 848–858. doi:[10.1007/s10803-010-1105-9](https://doi.org/10.1007/s10803-010-1105-9).
- Little, L. (2002). Differences in stress and coping for mothers and fathers of children with Asperger's syndrome and nonverbal learning disorders. *Pediatric Nursing*, *28*, 565–570.
- Marciano, S. T., Drasgow, E., & Carlson, R. G. (2015). The marital experiences of couples who include a child with autism. *The Family Journal*, *23*(2), 132–140. doi:[10.1177/1066480714564315](https://doi.org/10.1177/1066480714564315).
- Marsh, H. W., & Hau, K. T. (1996). Assessing goodness of fit: Is parsimony always desirable? *The Journal of Experimental Education*, *64*, 364–390.
- McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The Double ABCX model of adjustment and adaptation. In H. I. McCubbin, M. B. Sussman, & J. M. Patterson (Eds.), *Social stress and the family: Advances and developments in family stress theory and research* (pp. 7–37). New York: The Haworth Press.
- Pakenham, K. I., Sofronoff, K., & Samios, C. (2011). Finding meaning in parenting a child with Asperger syndrome: Correlates of sense making and benefit finding. *Research in Developmental Disabilities*, *25*(3), 245–264. doi:[10.1016/j.ridd.2003.06.003](https://doi.org/10.1016/j.ridd.2003.06.003).
- Pozo, P., & Sarriá, E. (2014). A global model of stress in mothers and fathers of individuals with autism spectrum disorders (ASD). *Anales de Psicología*, *30*, 180–191. doi:[10.6018/analesps.30.1.140722](https://doi.org/10.6018/analesps.30.1.140722).
- Pozo, P., & Sarriá, E. (2015). Still stressed but feeling better: Well-being in autism spectrum disorder families as children become adults. *Autism*, *19*(7), 805–813. doi:[10.1177/1362361315583191](https://doi.org/10.1177/1362361315583191).
- Pozo, P., Sarriá, E., & Brioso, A. (2014). Family quality of life and psychological well-being in parents of children with autism spectrum disorders: A double ABCX model. *Journal of Intellectual Disability Research*, *58*, 442–458. doi:[10.1111/jir.12042](https://doi.org/10.1111/jir.12042).
- Ramish, J. L., Onaga, E., & Oh, S. M. (2014). Keeping a sound marriage: How couple with children with ASD maintain their marriages. *Journal of Child Family Studies*, *23*, 975–988. doi:[10.1007/s10826-013-9753-y](https://doi.org/10.1007/s10826-013-9753-y).
- Rezendes, D. L., & Scarpa, A. (2011). Associations between parental anxiety/depression and child behavior problems related to autism spectrum disorders: The roles of parenting stress and parenting self-efficacy. *Autism Research and Treatment*, *2011*, 395190. doi:[10.1155/2011/395190](https://doi.org/10.1155/2011/395190).
- Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, *57*, 1069–1081. doi:[10.1037/0022-3514.57.6.1069](https://doi.org/10.1037/0022-3514.57.6.1069).
- Ryff, C., & Keyes, C. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*, 719–727. doi:[10.1037/0022-3514.69.4.719](https://doi.org/10.1037/0022-3514.69.4.719).
- Samios, C., Pakenham, K. I., & Sofronoff, K. (2012). Sense making and benefit finding in couples who have a child with Asperger syndrome: An application of the Actor-Partner Interdependence Model. *Autism*, *16*, 275–292. doi:[10.1177/1362361311418691](https://doi.org/10.1177/1362361311418691).
- Santos-Iglesias, P., Vallejo-Medina, P., & Sierra, J. C. (2009). Propiedades psicométricas de una versión breve de la Escala de Ajuste Diádico en muestras españolas. *International Journal of Clinical and Health Psychology*, *9*, 501–517.
- Schopler, E., Reichler, R. J., & Renner, B. R. (1988). *The childhood autism rating scale (C.A.R.S)*. Los Angeles: Western Psychological Services.
- Sideridis, G., Simos, P., Papanicolaou, A., & Fletcher, J. (2014). Using structural equation modeling to assess functional connectivity in the brain power and sample size considerations. *Educational and Psychological Measurement*, *74*(5), 733–758. doi:[10.1177/0013164414525397](https://doi.org/10.1177/0013164414525397).
- Smith, L. E., Hong, J., Seltzer, M. M., Greenberg, J. S., Almeida, D. M., & Bishop, S. L. (2010). Daily experiences among mothers of adolescents and adults with ASD. *Journal of Autism and*

- Developmental Disorders*, 40(2), 167–178. doi:[10.1007/s10803-009-0844-y](https://doi.org/10.1007/s10803-009-0844-y).
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38(1), 15–38. doi:[10.2307/350547](https://doi.org/10.2307/350547).
- Tomanik, S., Harris, G. E., & Hawkins, J. (2004). The relationship between behaviours exhibited by children with autism and maternal stress. *Journal of Intellectual and Developmental Disability*, 29, 16–26. doi:[10.1080/13668250410001662892](https://doi.org/10.1080/13668250410001662892).
- Walsh, F. (1996). The concept of family resilience: Crisis and challenges. *Family Process*, 35, 261–281. doi:[10.1111/j.1545-5300.1996.00261.x](https://doi.org/10.1111/j.1545-5300.1996.00261.x).
- Weitlauf, A. S., Vehorn, A. C., Taylor, J. L., & Warren, Z. E. (2012). Relationship satisfaction, parenting stress, and depression in mothers of children with autism. *Autism*, 18(2), 194–198. doi:[10.1177/1362361312458039](https://doi.org/10.1177/1362361312458039).
- Wolf, E. J., Harrington, K. M., Clark, S. L., & Miller, M. W. (2013). Sample size requirements for structural equation models: an evaluation of power, bias, and solution propriety. *Educational and Psychological Measurement*, 73(6), 913–934. doi:[10.1177/0013164413495237](https://doi.org/10.1177/0013164413495237).
- Zaidman-Zait, A., Mirenda, P., Duku, E., Szatmari, P., Georgiades, S., Volden, J., et al. (2014). Examination of bidirectional relationships between parent stress and two types of problem behaviour in children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 44, 1908–1917. doi:[10.1007/s10803-014-2064-3](https://doi.org/10.1007/s10803-014-2064-3).
- Zaidman-Zait, A., Mirenda, P., Zumbo, B. D., Wellington, S., Dua, V., & Kalynchuk, K. (2010). An item response theory analysis of the parenting stress index-short form with parents of children with autism spectrum disorders. *Journal of Child Psychology and Psychiatry*, 51(11), 1269–1277. doi:[10.1111/j.1469-7610.2010.02266.x](https://doi.org/10.1111/j.1469-7610.2010.02266.x).