

Parental stress and resilience in autism spectrum disorder and Down syndrome

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Abstract

The aim of this study was to compare parental stress and resilience in parents of children with autism spectrum disorder (ASD), Down syndrome (DS), and typical development (TD), and analyze the relationship between these two constructs. A total of 97 parents participated (ASD: $n = 32$, DS: $n = 23$, and TD: $n = 42$). The instruments used were the Parental Stress Index and the Resilience Scale. The ASD group obtained higher parental stress related to the child's characteristics but not related to the parents' characteristics. The three groups obtained moderate resilience, and high resilience was associated with low parental stress in the ASD and DS groups. The higher parental stress obtained in the ASD group, compared to the DS group, was not associated with aspects related to the parents or demographic and

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social factors of the families but rather with aspects related to the child and the characteristics of each disorder, as perceived by the parents.

Keywords

resilience, parental stress, autism spectrum disorder, Down syndrome, family

The DSM-5 (American Psychiatric Association, 2013) diagnostic manual distinguishes among neurodevelopmental disorders (ND), intellectual disability (ID), and autism spectrum disorder (ASD), among others. First, ASD involves the presence of persistent difficulties in communication and social interaction in many contexts, along with restrictive, repetitive, and stereotypical patterns of behavior, activities, and interests. The symptoms must be present in the first phases of development, they must produce significant clinical impairment in various areas of functioning, and they cannot be better explained by ID. Second, ID involves the presence of limitations in intellectual functioning and adaptive deficits in the conceptual, social, and practical domains that appear during the developmental period. The most prevalent ID with a genetic origin is Down syndrome (DS), which is also usually accompanied by limitations in aspects related to communication and behavior.

The main goal of the present study is to focus on parental stress and resilience in ASD and DS. Specifically, the study first compares the levels of perceived parental stress in parents of children with ASD, DS, and typical development (TD), focusing on parental stress associated with the characteristics of the child and with the characteristics of the parents themselves. The study then compares the level of perceived resilience among the three groups of parents and, finally, analyses whether there is a relationship between parental stress and resilience in each group. First, a synthesis of the reviewed literature on parental stress and resilience in these ND will be presented below.

Parental Stress in ND

Parental stress is the stress related to child-rearing that is associated with factors stemming from both the children and the parents (Abidin, 1995). Parental stress arises when a family is not capable of drawing on adaptive coping strategies to stabilize its functioning after the appearance of a stressful factor (Hayes & Watson, 2013).

The birth of a child with an ND, such as DS or ASD, can alter the environment by creating certain added child-rearing difficulties that would not be

found with children with TD. The literature comparing the parental stress of parents of children with ND –such as DS and ASD- and parents of children with TD reports greater parental stress in the case of ND (e.g., DS: Marchal et al., 2016; ASD: Hoffman et al., 2009; Pastor-Cerezuela et al., 2016).

When comparing parents of children with different disorders or disabilities, the greatest differences are obtained between ASD and DS (e.g., Griffith et al., 2010), and the pattern of results usually obtained reveals what the literature has referred to as an “advantage” in favor of families of children with DS and a “disadvantage” in families of children with ASD (Blacher et al., 2013; Corrice & Glidden, 2009; Esbensen & Seltzer, 2011; Hodapp et al., 2003; Smith et al., 2014). In fact, the literature reports that ASD is the ND that produces the most parental stress, more than other types of disabilities or disorders (Craig et al., 2016; Hayes & Watson, 2013; Valicenti-McDermott et al., 2015).

Factors Related to the Child Involved in Parental Stress in ASD and DS

Numerous studies have tried to investigate the reasons for the so-called “advantage” of DS and the “disadvantage” of ASD in terms of parental stress (e.g., Corrice & Glidden, 2009; Esbensen & Seltzer, 2011; Mitchell et al., 2015; Stoneman, 2007). Thus, aspects related to the child have been pointed out, such as behavior problems (see the meta-analysis by Barroso et al., 2018). Behavior problems are common in ASD, but less frequent in DS (Eisenhower et al., 2005; Griffith et al., 2010). In addition, many children with DS have a sociable and friendly nature (Esbensen & Seltzer, 2011; Fidler et al., 2008), which contrasts with the less sociable and more inflexible nature usually presented by children with ASD. Likewise, the severity of the ASD symptomatology, particularly the frequency of the presentation of restrictive and repetitive behaviors, such as resistance to change (Lyons et al., 2010), could also contribute to high parental stress in the parents of children with ASD, compared to parents of children with DS.

Demographic and Social Factors Involved in Parental Stress in ASD and DS

Certain demographic aspects and characteristics of the social context of the families could also contribute to the differences in parental stress, such as the parents’ age, income, and educational levels (Stoneman, 2007), and access to resources (Pisula, 2007), which in many cases are higher in families with

children with DS. However, some studies have found that the “advantage” of DS continues to be present after controlling the effect of demographic, family, or social factors (e.g., Smith et al., 2014). Other factors could also be associated with parental stress and other aspects of parents’ mental health, such as differences between the diagnostic processes for the two disorders (Rivard et al., 2014), and even aspects intrinsic to the family itself, such as the so-called broader autism phenotype (Su et al., 2018).

Resilience in ND

Resilience is a dynamic process that makes it possible to moderate the negative effects of stress and promote adaptation within the context of significant adversity (Luthar, Cicchetti, & Becker, 2000; Wagnild & Young, 1993). Parents with resilient potential are capable of overcoming the difficulties stemming from raising their children in trying situations and, therefore, achieve positive functioning in the family core (Hayes & Watson, 2013). The use of adaptive strategies—especially social support—, has been considered a resilient factor in itself and protective against parental stress (Lindsey & Barry, 2018; Lu et al., 2018; Pozo et al., 2014).

The factors contributing to family resilience can be individual, such as perceived self-competence in the parental role (Pastor-Cerezuela et al., 2016), dispositional optimism (Greenberg et al., 2004), acceptance and sense of coherence (Bekhet et al., 2012); family system factors, such as cohesion, effective communication, family adaptability and family togetherness (Bekhet & Matel-Anderson, 2017; Choi & Yoo, 2015); and contextual factors, such as access to resources (McConnell et al., 2014). Moreover, in the analysis of the protective factors against parental stress and those that contribute to resilience, the consideration of cultural factors is quite relevant. Thus, whereas in Anglo-Saxon countries individual factors are more important, in Latin countries, such as Spain, the family, and social context have more weight (Gómez & Kotliarenko, 2010; Suárez-Ojeda, 2001; Suárez-Ojeda & Autler, 2006).

The results of studies that have evaluated the level of resilience in parents of children with ND show good or moderate levels of resilience, with some of these studies being qualitative (King et al., 2006; King et al., 2009; Rooke & Pereira-Silva, 2016) and others quantitative (Greenberg et al., 2004; Pastor-Cerezuela et al., 2016; Whitehead et al., 2015), although the majority were carried out in parents of children with ASD.

As far as we know, very few studies have compared the level of resilience in parents of people with different disabilities. Greenberg et al. (2004) did not find significant differences between mothers of adults with ASD and DS on

certain aspects related to resilience, such as dispositional optimism and positive psychological well-being. However, the data from the study by Greenberg et al. (2004) were collected in the 1990s using American samples and comparing mothers of adults with ASD, DS, and schizophrenia, whereas the present study was carried out with Spanish samples, comparing parents of school-age children with ASD, DS, and TD. Therefore, there is a noteworthy difference between the two studies in terms of the characteristics of the samples compared.

Relationship between Parental Stress and Resilience

Regarding the relationship between parental stress and resilience, in the case of parents with ASD, significant inverse relationships have been found between parental stress and resilience (Duca, 2015; Pastor-Cerezuela et al., 2016), and also with indicators of resilience, such as perceived self-efficacy (Benson, 2014; Falk et al., 2014). Nevertheless, we did not find any study that analyzes the relationship between parental stress and resilience in parents of children with DS.

The current study

The present study focused on parental stress and resilience in three groups of parents of children with ASD, DS, and TD. The objectives were: (a) to compare the parental stress of the three groups, both parental stress related to the child's characteristics and parental stress related to the parents' characteristics (according to Abidin, 1995); (b) to compare the parental resilience of the three groups and (c) to analyse, in each group separately, the relationship between parental stress and resilience. Objectives 2 and 3 represent the main novel contribution of the present study, given that hardly any previous studies have compared resilience in groups of parents of children with different ND or examined the relationship between resilience and parental stress, especially in parents of children with DS.

Based on the literature reviewed, we expect the group of parents of children with ASD to present greater parental stress than the group of parents with DS, and we expect the latter to present greater parental stress than the parents of children with TD. We expect to find these differences in both aspects of parental stress, that is, related to the child's characteristics and related to the parents' characteristics, given that the literature indicates that the differences found in parental stress between these groups are associated with aspects related to the child (e.g., behavior) and with aspects of the parents themselves and the social context (e.g., personality traits, availability of

support. . .). With regard to resilience, we did not find any previous studies that compared the resilience of the three groups of parents, except the study by Greenberg et al. (2004) comparing some aspects of resilience in mothers of adults with ASD and DS. Therefore, we aim to compare the level of resilience of the three groups of parents from an exploratory perspective or approach. Finally, based on the literature reviewed, we expect to obtain a significant and inverse relationship between resilience and parental stress.

Methods

Participants

The sample in the present study was composed of 97 parents (fathers or mothers) of children distributed into three groups: DS, ASD, and TD. For each child, either the father or the mother participated. Table 1 presents the demographic data for the families participating in the study. Statistically, significant differences were only found for age ($F_{(2,94)} = 18.60$; $p < 0.001$; $\eta^2_p = 0.284$), with the mean age of the parents in the DS group being higher than the mean age of the parents in the other two groups. Most of the participants were the mothers (84.4% in the ASD group, 82.14% in the DS group, and 78.6% in the TD group), whereas the fathers' participation was much lower (15.6% in the ASD group, 17.86% in the DS group, and 21.4% in the TD group).

All the participants were of Spanish Caucasian origin, and their native language was Castilian Spanish. None of the parents of the three groups had received any type of stress-management therapy or intervention. In addition, all the parents participating in the study were administered the Social Communication Questionnaire (SCQ, Rutter et al., 2003), a parent-report screening measure that taps the symptomatology associated with ASD, present in scores above 15. The results on the SCQ would reduce the probability of the presence of autism symptomatology in the DS and TD groups.

DS group. The DS group was composed of 23 children (15 males and 8 females), with a mean age of 8.52 years ($SD = 2.54$), and a mean performance IQ of 62.26 ($SD = 5.92$) on the Raven test (Raven, 1996). In all cases, the scores obtained on the SCQ were below 15, with a mean score of 8.50 ($SD = 5.42$), so that the presence of ASD was not likely in the DS group. The children in this group belonged to different associations for families of children with DS in Valencia (Spain). These children were enrolled in various schools in Valencia (Spain) in the ordinary modality with special education support personnel.

Table 1. Demographic Data of the Participants.

	DS Group (N = 23)	ASD Group (N = 32)	TD Group (N = 42)
Data for the children			
Age in years (M; SD)	8.52; 2.54	6.79; 1.08	6.82; 1.16
Sex (%)			
Male	65.2	90.62	80.95
Female	34.8	9.37	19.04
Performance IQ (M; SD)	62.26; 5.92	97.09; 20.47	100.09; 17.73
Data for the parents			
Age (M; SD)	46.17; 4.28	39.09; 4.29	39.98; 4.89
Sex (%)			
Male	17.86	15.60	21.4
Female	82.14	84.40	78.6
Economic level (%)			
No income	0.00	9.40	11.90
Low	13.00	18.80	7.10
Medium-low	4.30	15.60	21.40
Medium	69.60	53.10	59.50
Medium-high	13.00	3.10	0.00
Educational level (%)			
No studies	0.00	3.10	0.00
Primary/basic	17.40	21.90	28.6
Mid-level	13.00	37.50	31.00
High-level	69.60	37.50	40.5
Environment where they live (%)			
Urban	95.70	84.40	73.80
Residential	4.30	9.40	16.70
Rural	0.00	3.10	9.50
Others	0.00	3.10	0.00
Marital status (%)			
Married	87.00	78.10	66.70
Single	0.00	9.40	0.00
In a couple	8.70	3.10	11.90
Separated	4.30	9.40	19.00
Widowed	0.00	0.00	2.40
Number of children (M; SD)	2.17; 1.15	1.90; 0.60	1.91; 0.48

Notes. Statistically significant differences were only found on age between the groups.

ASD group. The ASD group was composed of 32 children (29 males and 3 females), with a mean age of 6.79 years ($SD = 1.08$), and a mean performance

IQ of 97.09 ($SD = 20.47$) on the Raven test. The children had a clinical diagnosis of ASD according to the criteria of the DSM-IV-TR (American Psychiatric Association, 2000), and they met the diagnostic criteria for level 2 of the DSM-5 (American Psychiatric Association, 2013). They were diagnosed with neuropsychiatric services from different hospitals in the national health system. These neuropsychiatric services were responsible for checking for compliance with these diagnostic criteria, and they referred the children who met the diagnostic criteria to early care units. There, the diagnosis was confirmed using more specific instruments, such as the Autism Diagnostic Observation Schedule (ADOS), which was applied by specialized psychologists who had official accreditation to use this instrument. In addition, in all cases, the scores obtained on the SCQ were above 15, with a mean score of 26.07 ($SD = 7.08$). All the children in this group were attending schools with specific classrooms where the Treatment and Education of Autistic and Related Communication Handicapped Children (TEACCH) methodology was carried out. These are integrated classrooms included in regular state schools in Valencia (Spain) where students with disorders affecting language and communication are enrolled. The families participating in this group belonged to associations of parents of autistic children.

In the two groups of children with ND, therefore, the severity of the specific disability of each disorder can be considered mild or moderate, given that the children in the ASD group belonged to level 2 of the DSM-5, and the children in the DS group had an ID level classified as mild.

TD group. The TD group was composed of 42 children (34 males and 8 females) with no clinical diagnosis, a mean age of 6.82 years ($SD = 1.16$), and a mean performance IQ of 100.09 ($SD = 17.73$) on the Raven test. They attended the same schools as the ASD group, but in the regular modality. In all cases, the scores obtained on the SCQ were below 15, with a mean score of 3.50 ($SD = 3.12$); therefore, the probability of the presence of autism symptomatology was low in this group.

Comparison of Groups of Children on Gender, Age, and IQ

No statistically significant gender differences were found among the three groups of children, but there were differences in chronological age ($F_{(2,94)} = 10.30$; $p < 0.001$; $\eta^2_p = 0.180$) and performance IQ ($F_{(2,94)} = 41.56$; $p < 0.001$; $\eta^2_p = 0.469$). The children's mean age was higher in the DS group than in the other two groups, and performance IQ was lower in the DS group than in the other two groups.

Procedures

This study was approved and funded by the University of Valencia and had the authorization of the agency responsible for primary education. To obtain the sample for the ASD and TD groups, all of the Valencian state schools with TEACCH integrated classrooms were invited, via an informational meeting, to participate in the research, and the children were collected from the schools that voluntarily agreed to participate. To obtain the sample for the DS group, the associations of families of children with DS were contacted, and various families of children with DS voluntarily agreed to participate in the study. The parents of the children in the three groups gave written informed consent to participate in the research, and they were asked to fill out the SCQ (Rutter et al., 2003) to assess the symptomatology associated with ASD. Parents were also asked to have an interview with the psychologist to provide the necessary information about their children, supply family demographic data, and fill out the questionnaires. The psychologist interviewed the parents to obtain information about parental stress by administering the Parenting Stress Index (PSI; Abidin, 1995), and about resilience by administering the Resilience Scale (RS; Wagnild & Young, 1993). The interviews were carried out with the mother or father of each child individually, and they lasted approximately two hours. The children's performance IQ was individually evaluated by the psychologist by administering the Raven test (Raven, 1996). All the data from the ASD and TD groups were collected in noise- and distraction-free classrooms in the schools, whereas the data from the DS group were collected in the installations or physical spaces of the associations where they had been contacted.

Instruments

Parenting Stress Index (PSI; Abidin, 1995). The PSI is a comprehensive and standardized measure designed to evaluate parenting stress. It is the most widely used instrument to evaluate parental stress in parents of children with ASD and other disabilities (Hayes & Watson, 2013). It has strong psychometric properties, and its validity is supported in numerous studies described in the manual across different disability groups. In our study, we used the translation by Grau (2007), for which both forward and backward translations were carried out, and the equivalence of the translation was first reviewed by eight expert panel members. In the translation of the PSI, cultural nuances were also taken into consideration in order to guarantee its validity.

Table 2. Subscales Included in the Parenting Stress Index (PSI; Abidin, 1995).

Child Domain	Parent Domain
Distractibility/hyperactivity (childhood behaviors associated with ADHD)	Competence (parents' feelings of competence about their role as parents)
Adaptability (to changes and transitions)	Isolation (social)
Reinforces parent (perception or feelings of the child as a source of reinforcement)	Attachment (feeling closeness or emotional bonding with the child)
Demandingness (the child's demands, requirements, and difficulties)	Health (parental health problems)
Mood (the child's negative mood state)	Role restriction (limitations or restrictions on the parental role)
Acceptability (parents' expectations about the physical, intellectual, and emotional characteristics of their child)	Depression (presence of sadness and feelings of discontent with themselves and with their life circumstances)
	Spouse (active and emotional support from the partner in taking care of the child)

The PSI questionnaire has a total of 120 items responded to on a Likert-type scale, of which 101 evaluate perceived parental stress in two domains: the Child Domain and the Parent Domain. The Child Domain refers to the stress stemming from caring for the child and from the characteristics of the child that make raising him or her more difficult. The Parent Domain refers to the stress derived from the parents' characteristics and functioning, which can keep them from appropriately performing their parental role. Each of these two domains contains various subscales (or variables), which are presented in Table 2. The PSI provides a direct score for each variable, as well as a global score for each domain (Child and Parent). All of these scores were used in this study. Internal consistencies, assessed by Cronbach's alpha, were 0.92 for the Child Domain and 0.93 for the Parent Domain.

Resilience Scale (RS; Wagnild & Young, 1993; adaptation by Heilemann et al., 2003). This scale was designed to identify personal qualities that contribute to resilient individual adaptation, and it consists of 25 items responded to on a Likert-type scale. The total score is obtained from the sum of the scores on the scale, and the theoretical values range from 25 to 175. Scores above 145 are indicative of high resilience, scores below 120 indicate low resilience, and scores from 120 to 145 show moderate resilience. The RS has been

adapted and validated in several countries, obtaining good psychometric properties. We used the Spanish version (ES), adapted by Heilemann et al. (2003), which showed high internal consistency (Cronbach's $\alpha = 0.93$), as in the current study.

Questionnaires developed by the authors. We developed a socio-demographic questionnaire to ask parents about their gender, age, educational level, occupation, marital status, income level, and number of children in the family (see Table 1).

Data Analysis

The analyses were performed using the SPSS version 24 statistical package. For the between-group comparisons, a covariate was introduced into the analyses, the age of the parent, but the age of the child was not introduced as a covariate to avoid collinearity (because parent age and child age correlated significantly, $r = 0.261$, $p = 0.01$). We opted to introduce parent age as covariate (instead of child age) because the variables analysed in this study are evaluated in the parents. First, two MANCOVAs were conducted among the three groups: one for the subscales of the PSI Child Domain and another for the subscales of the PSI Parent Domain, and the corresponding confirmation ANCOVAs. Two ANCOVAs were performed with the three groups: one for the global index of the PSI Child Domain and another for the global index of the PSI Parent Domain. Moreover, an ANCOVA was conducted on the total score on the RS in the three groups. In the ANCOVAs, the Bonferroni correction was used, establishing the significance level at less than or equal to 0.016. In all these between-group comparison analyses, effect sizes were calculated using partial η^2 values, according to Cohen (1988): $\eta^2 = 0.06$, small effect size; $\eta^2 = 0.06$ to 0.14, moderate; $\eta^2 = 0.14$, large. Finally, for each group separately, Pearson correlation analyses were conducted between the two global indices of the PSI and the total score on the RS.

Results

Group Differences in Parental Stress

The MANCOVA among the three groups for the PSI Child Domain subscales was statistically significant [*Wilks' Lambda* (Λ) = 0.526, $F_{(12, 176)} = 5.56$; $p = 0.001$ $\eta^2_p = 0.275$], with a large effect size. As the confirmatory ANCOVAs in Table 3 show, the ASD group obtained significantly higher scores than the TD group on all the subscales, and higher than the DS group on most of the subscales. The effect sizes were large for all the subscales, except Reinforces

Table 3. Means, Standard Deviations, and *F* Values for PSI Child Domain Subscales for DS, ASD, and TD Groups.

PSI Child Domain		DS (<i>n</i> = 23)	ASD (<i>n</i> = 32)	TD (<i>n</i> = 42)	<i>F</i> _(2,93)	η^2_p
Distractibility/ hyperactivity^a	M	26.26	32.38	23.50	22.62**	0.327
	SD	6.03	5.60	5.19		
Adaptability^a	M	24.61	32.63	22.67	17.19**	0.270
	SD	8.09	7.70	6.10		
Reinforces parent^b	M	9.70	12.19	9.48	5.74**	0.110
	SD	2.32	5.25	2.63		
Demandingness^a	M	21.48	27.19	17.26	27.38**	0.371
	SD	7.32	5.34	5.09		
Mood^a	M	9.43	12.47	8.76	12.05**	0.206
	SD	3.84	3.48	2.75		
Acceptability^b	M	19.04	26.53	12.98	17.18**	0.270
	SD	5.34	15.18	5.59		

Notes. ^aGroup difference: ASD > DS, TD. ^bGroup difference: ASD > TD.

***p* ≤ 0.016. Bonferroni correction of critical *p* values when performing multiple comparisons. Covaried for parent age.

parent, which was moderate. Regarding the global index from the PSI Child Domain, the results were the following: (*DS group*: *M* = 110.16, *SD* = 5.89; *ASD group*: *M* = 143.52, *SD* = 4.53; *TD group*: *M* = 94.72, *SD* = 3.88); the ANCOVA among the three groups was statistically significant ($F_{(2,93)} = 34.95$, *p* = 0.001, $\eta^2_p = 0.429$), and the score of the ASD group was significantly higher than the scores of the other two groups, with a large effect size. There were no statistically significant differences between the DS and TD groups on any of the PSI Child Domain subscales or on the global index.

The MANCOVA among the three groups for the subscales of the PSI Parent Domain was statistically significant [*Wilks' Lambda* (Λ) = 0.784, $F_{(14, 174)} = 1.88$, *p* = 0.031, $\eta^2_p = 0.132$], with a moderate effect size. As the confirmatory ANCOVAs in Table 4 show, the ASD group obtained statistically higher scores than the TD group on the Role restriction and Spouse subscales, but no statistically significant differences were found between the ASD and DS groups on any of the subscales in this domain. In the case of the Role restriction subscale, the effect size was large, and in the case of the Spouse subscale, it was moderate. With regard to the global index of the PSI Parent Domain, the results were the following: (*DS group*: *M* = 119.49, *SD* = 6.12; *ASD group*: *M* = 133.46, *SD* = 4.72; *TD group*: *M* = 111.21, *SD* = 4.04), and the ANCOVA among the three groups was statistically significant ($F_{(2,93)} = 6.71$, *p* = 0.002, $\eta^2_p = 0.126$). In this case, significant differences were only

Table 4. Means, Standard Deviations, and *F* Values for PSI Parent Domain Subscales for DS, ASD, and TD Groups.

PSI Parent Domain		DS (<i>n</i> = 23)	ASD (<i>n</i> = 32)	TD (<i>n</i> = 42)	<i>F</i> _(2,93)	η^2P
Competence	<i>M</i>	28.84	31.97	28.10	3.29	0.066
	<i>SD</i>	1.54	1.18	1.01		
Isolation	<i>M</i>	12.23	14.92	12.33	3.26	0.066
	<i>SD</i>	1.08	0.83	0.71		
Attachment	<i>M</i>	13.09	12.87	11.56	2.25	0.046
	<i>SD</i>	0.74	0.57	0.49		
Health	<i>M</i>	13.27	13.77	11.09	2.47	0.050
	<i>SD</i>	1.29	0.99	0.85		
Role restriction^a	<i>M</i>	18.86	22.09	16.52	8.08**	0.148
	<i>SD</i>	1.40	1.07	0.92		
Depression	<i>M</i>	18.17	18.51	16.67	1.40	0.029
	<i>SD</i>	1.17	0.90	0.77		
Spouse^a	<i>M</i>	14.99	19.30	14.91	5.88**	0.112
	<i>SD</i>	1.34	1.03	0.88		

Notes. ^aGroup difference: ASD>TD

***p* ≤ 0.016. Bonferroni correction of critical *p* values when performing multiple comparisons. Covaried for parent age.

found between the ASD group and the TD group, with the ASD group scoring higher, with a moderate effect size. There were no statistically significant differences between the DS and TD groups on any of the PSI Parent Domain subscales or on the global index.

Group Differences in Resilience

The results obtained for each group on the total score of the RS were the following: (*DS group*: *M* = 140.35, *SD* = 16.15; *ASD group*: *M* = 135.06, *SD* = 16.54; *TD group*: *M* = 144.60, *SD* = 15.30), which indicated moderate levels of resilience in the three groups. The result of the ANCOVA among the three groups was: $F_{(2,93)} = 3.21$, *p* = .045, $\eta^2 = .065$, a result that is not statistically significant after applying the Bonferroni correction.

Parental Stress and Resilience

Pearson correlations were carried out to examine the relationship between parental stress and resilience in the three groups separately. In the TD group, no significant relationship was found between parental stress and resilience.

Thus, in this group, the total index for resilience did not significantly correlate with the PSI Parent Domain global index ($r = -.145, p = .359$) or the PSI Child Domain global index ($r = .024, p = .881$). In the two groups of parents with children with ND, statistically significant correlations were obtained, specifically between the total index for resilience and the global index of the PSI Parent Domain in the DS group ($r = -.732, p < .001$, with a large r) and between the total index for resilience and the global index of the PSI Child Domain in the ASD group ($r = -.381, p = .031$, with a moderate r).

Discussion

The present study focused on parental stress and resilience in three groups of children: ASD, DS, and TD.

Parental Stress in the Child Domain

We expected the group of parents of children with ASD to present greater parental stress in the child domain than the group of parents with DS, and we expected the latter to present greater parental stress in this domain than the parents of children with TD. The higher levels of parental stress obtained by the ASD group in the child domain, compared to the TD (on all the factors) and DS (on most of the factors) groups, might indicate that the parents' perceptions of the characteristics of their child with ASD would be associated with the stress related to child-rearing tasks. These results agree with studies that have obtained the so-called "advantage" in raising a child with DS compared to a "disadvantage" in raising a child with ASD (Blacher et al., 2013; Corrice & Glidden, 2009; Hodapp et al., 2003; Smith et al., 2014), which could be explained by some ASD factors related to parental stress. Examples of these factors could be distractibility and hyperactivity/impulsivity because behavioral characteristics associated with ADHD sometimes have a comorbid presence in ASD (Pastor-Cerezuela et al., 2016; Rao & Landa, 2014). Other possible factors would be inflexibility and difficulty adapting to changes and transitions, which are common characteristics of ASD (Lyons et al., 2010). Additional factors would be the child's requests and demands, the difficult behavior -due to being overly demanding- presented by some children with ASD, associated with a lack of adaptive behavior and functional skills and autonomy in everyday life activities (Gardiner & Iarocci, 2015). Finally, a negative mood state, manifested in difficult behaviors by the child, such as irritability, occurs more frequently in ASD than in DS (Valicenti-McDermott et al., 2015) and could also be related to parental stress.

The lack of differences found between the DS and TD groups on parental stress associated with the child's characteristics, although unexpected, would agree with proposals (Povee et al., 2012) that parents usually equate raising a child with DS with "normality". The low frequency of behavioral problems, along with the sociable and agreeable nature that characterizes many children with DS (Esbensen & Seltzer, 2011) could be key factors involved in these results.

Parental Stress in the Parent Domain

We expected the group of parents of children with ASD to present greater parental stress in the parent domain than the group of parents with DS, and we expected the latter to present greater parental stress in this domain than the parents of children with TD. However, we only obtained significant differences on some of the subscales in this domain and on the overall index between the ASD and TD groups. The characteristics of the parents of children with ASD could contribute -to a greater degree than in parents of children with TD- to the stress they experience in relation to child-rearing tasks and the feeling of being tied to the child and seeing their parental role restricted, a result that agrees with previous studies (Hoffman et al., 2009; Pastor-Cerezuela et al., 2016). Moreover, the perception of a dysfunctional relationship with the partner and lack of support from him/her on childcare tasks coincides with studies reporting a negative impact of raising a child with ASD on the marital relationship (Gau et al., 2012; Santamaria et al., 2012).

Although unexpected, the lack of significant differences found between the ASD and DS groups, or between the DS and TD groups, on any factor of parental stress associated with the parents' characteristics could be related to the fact that there were no significant differences among the three groups of families in socio-demographic characteristics such as gender, educational level, economic level, occupation, place where they live, marital status, and number of children in the family. In the case of the age of the parents and the age of the children (variables that correlated), they were controlled by introducing one of them as covariate in the analyses. This result would allow us to assume that, in the two groups with ND, the so-called "advantage" of DS and the "disadvantage" of ASD would not be artefactual; that is, it would not be associated with demographic and social factors of the families, but rather with characteristics of the children themselves or characteristics of each disorder, as perceived by the parents (Corrice & Glidden, 2009; Mitchell et al., 2015; Smith et al., 2014).

Resilience

Although we have approached the comparison of the level of resilience of the three groups of parents from an exploratory perspective, the lack of significant differences among the three groups on the levels of resilience perceived would be consistent with the study by Greenberg et al. (2004), where no differences were found between mothers of adults with ASD and DS on certain aspects related to resilience, such as dispositional optimism and positive psychological well-being. Moreover, in our study, the parents of the children in the three groups perceived themselves as moderately resilient to adversity, which suggests that, despite the challenges faced by families of children with ND such as ASD and DS, they see themselves as having a moderate capacity to deal with the situation and even be moderately strengthened by it.

The similar levels of resilience perceived in the three groups could be related to the fact that there were no significant differences among the three groups of families in their socio-demographic characteristics. Thus, the fact that these characteristics (e.g., educational level, economic level, occupation, place where they live, marital status, and number of children in the family) could be associated not only with parental stress but also with resilience, could partly justify the lack of differences obtained on these variables. However, other factors -such as social support and service availability- could also be related to parental stress and perceived resilience. These aspects should be considered in future studies because they were not evaluated in the present study. Particularly, given the important weight of the family and the social context in Latin countries, such as Spain, future studies should examine the role of these types of factors as protectors against parental stress and promoters of resilience. Therefore, future research will have to further investigate the personal, family, and contextual factors that -in our sample of parents- together promote the creation of strengths that help to overcome difficulties.

Relationship between Parental Stress and Resilience

We expected to obtain a significant and inverse relationship between resilience and parental stress. Only in the two ND groups was a significant and inverse relationship obtained between parental stress and resilience, although in different ways. In families with children with DS, parents who perceived themselves as more resilient to adversity reported less parental stress stemming from the characteristics of the parents themselves. However, in the families of children with ASD, parents who perceived themselves as more resilient to adversity reported less parental stress stemming, in this case, from

the child's characteristics (e.g., behavioral problems). This result is consistent with studies where resilience indicators have been associated with increased positive outcomes (Ekas et al., 2016; Halstead et al., 2018). The marked differences in adaptability, flexibility, and sociability that form part of the characteristic profiles of the two disorders could explain the relationship found only in the ASD group, but not in the DS group, between family resilience and parental stress in the child domain. This result could reinforce the idea that the so-called "advantage" of DS and "disadvantage" of ASD would not be artefactual, but rather associated with characteristics of the child or of each disorder, perceived by the parents. Thus, one of the main contributions the present study makes to the literature on the topic lies in the association found between perceived resilience and perceived parental stress in the two ND groups. This is particularly relevant in the case of stress related to the parents' characteristics in the DS group and stress related to the child's characteristics in the ASD group, given that this result sheds light on the so-called "advantage" of DS and "disadvantage" of ASD.

Finally, we have used the term "disadvantage" throughout the article, consistent with the literature on the topic (even in recent studies such as that of Farkas et al. (2019), in which the term "advantage" is used). However, we think the extensive use of this term to describe raising a child with ASD, compared to a child with DS, is not appropriate, given that this term labels ASD within a framework of deficit that is not aligned with the current predominant view of ASD, which is more positive. The term "disadvantage" should be re-examined, considering in its place the support needed by the family to achieve positive child-rearing and high-quality family life. Using the term of "support needed", instead of "disadvantage" or "deficit", in addition to agreeing more with the terms included in the DSM-5 about ASD, offers a more positive view of ASD that is more aligned with the resilience approach, which is undoubtedly a constructive approach oriented toward potential rather than deficits.

Limitations of the Study

Our study presents some limitations. The sample sizes are modest, which may affect the statistical power of some of the results obtained. The children with DS in this sample had an ID level classified as mild, and so severe and profound levels of ID are not represented. Likewise, children with ASD with very low cognitive functioning were not part of this sample, and so the autism spectrum was not entirely represented. Moreover, although the PSI and RS have very good psychometric properties and high reliability and validity, they are subjective measures that can lead to possible biases. Thus, for example,

parents who are stressed for any reason can perceive their child's behavior as more problematic. However, self-reports are crucial when assessing internalized states such as stress. Furthermore, in most cases, these instruments were filled out by mothers, which could limit the reach of the results and did not allow us to analyze possible differences between mothers' and fathers' reports. Finally, all the participants were of Spanish Caucasian origin, all of them belonged to a similar culture (the western culture), and they all had the same native language (Castilian Spanish). Therefore, although this composition favors the control of the different groups, the results obtained would not be generalizable to other populations of different cultural origins.

General Implications for Intervention

Raising a child with an ND generally involves more difficulties, demands, and requirements than usual. Since inappropriate or disruptive behaviors can be an important source of family stress, parent training in strategies for intervening in the child's behavior could contribute to reducing parental stress (Iadarola et al., 2018). However, parental stress can be related not only to the characteristics of the child but also to the characteristics of the parents themselves. The parents' perception of the child's disability also seems to be a relevant factor, so future research should focus on benefits and positive aspects of raising a child with a disability, identifying thoughts and cognitions that can be taught, encouraged, and supported in the parents of these children (Wayment & Brookshire, 2018). Interventions designed to develop resilience could be effective in reducing parental stress, as found in studies carried out in the Spanish context with parents of children with DS (Sánchez-Teruel & Robles-Bello, 2015). Likewise, mindfulness-based interventions could help to reduce stress and increase psychological well-being, as shown in the systematic review conducted by Cachia, Anderson and Moore (2016) in parents of children with ASD. Furthermore, certain parent-mediated interventions (e.g., psychoeducational interventions) may also have an influence on functioning, thus increasing parental self-efficacy (Karst et al., 2015). Interventions should also include all the members of the family, including siblings (Shivers et al., 2019; Tudor et al., 2018) and grandparents (Hillman et al., 2017), given that enhancing the resilience of the whole family would be beneficial for the family as a system.

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Informed consent was obtained from all individual participants included in the study.

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