OPEN ACCESS

GAVIN PUBLISHERS

International Journal of Autism & Related Disabilities

Benedetto L, et al. Int J Autism & Relat Disabil: IJARD-144.

Research Article

DOI: 10.29011/2642-3227.000044

Parental Self-Efficacy in Children with Autism Spectrum Disorders: Preliminary Findings by the Italian Version of the CAPES-DD

Loredana Benedetto*, Cristina Calderone, Massimo Ingrassia*

Department of Clinical and Experimental Medicine, University of Messina, Messina, Italy

***Corresponding authors:**loredana.benedetto@unime.it; massimo.ingrassia@unime.it

Citation: Benedetto L, Calderone C, Ingrassia M (2021) Parental Self-Efficacy in Children with Autism Spectrum Disorders: Preliminary Findings by the Italian Version of the CAPES-DD. Int J Autism & Relat Disabil: IJARD-144. DOI: 10.29011/2642-3227.000044

Received Date: 28 February, 2021; **Accepted Date:** 15 March, 2021; **Published Date:** 19 March, 2021

Abstract

The Italian version of the Child Adjustment and Parent Efficacy Scale-Developmental Disability (CAPES-DD; [1]) is presented in the study. The questionnaire (24 items) links the parent's perceptions of the severity of child's behavioral-emotional problems (intensity scale) with self-confidence in managing those problems (self-efficacy scale). The questionnaire was administered to 60 parents of children (2-16 years old) with diagnosed Autism Spectrum Disorders (ASD) and to 50 parents of typically developed children. Parents also filled a questionnaire assessing Parental Efficacy and Satisfaction (PSOC) and a screening tool for child's internalizing/externalizing problems (SDQ). The results evidence that this Italian version of the CAPES-DD is adequate for reliability (α=.96). For convergent validity, CAPES-DD self-efficacy scale positively correlates with PSOC, and CAPES-DD child's problem intensity scale with corresponding SDQ. PSE scores result lower in parents of ASD children, and negative correlations emerge among PSE levels and intensity of child's problems. The feasible applications of the CAPES-DD in assessing caregiver's adjustment to child's developmental disability and in planning parent training programs are discussed.

Keywords: ASD children; Assessment; Parental self-efficacy

Parenting Self-Efficacy (PSE) describes caregiver's confidence about his/her ability to positively perform parenting tasks, meeting the care and developmental needs of children [2,3]. PSE is a key construct for understanding the experience that everyone can draw from being a parent: higher PSE has been linked to satisfaction in caregiving [4], effective family functioning [5], and parent's general well-being despite difficult circumstances in life [6]. Greater sense of competence in parenting predicts positive parent-child relationships [7], effective coping [8], reduced frustration and parenting stress [9].

Following Bandura (1997) [10], self-efficacy is directly affected by personal experience and expectations, so parents' success/failure in caring situations influence their perceived self-efficacy. Particularly, parents of children with Autism Spectrum Disorder (ASD) report lower self-efficacy, increased anxiety and depression when compared to parents of children with typical development [11]. The core symptoms of ASD, that is, deficits in early social-communication skills (e.g., eye contact, affective reciprocity, gestures, compliance, etc.) and atypical behaviors (i.e., repetitive and stereotyped behaviors) generate parents' frustration and ineffective interaction patterns [12]. Studies report that stress levels associated with caring for a child with ASD are higher when compared with other developmental disabilities [13]. The negative consequences on parent's psychological adjustment [14,15] resulted associated not so much to child's developmental delay (i.e., expressive language), but to the severity of atypical behaviors [16,17]. Particularly, the severity of ASD symptoms (stereotyped and socially inappropriate behaviors) correlates with increased stress levels and lower self-efficacy [18]. Furthermore, PSE works as a mediating factor reducing the impact of child's behavioral problems on parent's anxiety, since parents with higher self-efficacy report less anxiety than parents with low self-efficacy. Therefore PSE, together with other protective factors such as perceived support and family hardiness [19], is a crucial individual resource for parental well-being and effective caring of ASD children. Assessing PSE could be useful in planning interventions to support parents and enhancing their competence in coping with problems of ASD children.

In literature there are different approaches for assessing PSE, and they move from a global (or general PSE) to a task-specific level of measurement of the construct [7,20]. At a general level, PSE is evaluated as a broad self-confidence not linked to

specific parenting tasks (for example, "I feel fulfilled as a parent"), whereas task-specific PSE is referred to concrete demands and childrearing situations (e.g., "I am unable to handle my child's crises"). The Parenting Sense of Competence Scale [4] is a well-known questionnaire assessing general parental self-efficacy in two distinct aspects, parental efficacy and satisfaction. Several studies adopt PSOC measures to explore the psychological adjustment in parents of autistic children. Giallo and colleagues (2011) [14] found associations between PSOC measures, maternal fatigue, stress, and need to receive support for child rearing. Similarly, Rezendes and Scarpa (2011) [18] found that children's behavioral problems increased parental stress that, in turn, linked to lower PSE and increases in anxiety and depression symptoms. Positive future expectations predict higher levels of maternal sense of competence [21]. Other studies report improvement in PSE levels in parents who receive psycho-educational interventions and parent training [22,23]. However, the evaluation of self-efficacy on a general level does not allows to grasp the link between efficacy perceived by parents and specific challenging behaviors of children with autism.

Following Bandura's suggestions (Bandura, 1997) [10], PSE is more accurate when evaluated at a task-specific level, as it is sensitive to the concrete situations that individual faces. Task-specific self-efficacy is also the better predictor of competence, that is, how well the activities are performed, together with the subjective feelings related to that concrete experience.

The Child Adjustment and Parent Efficacy Scale-Developmental Disability (CAPES-DD) is a questionnaire developed by Emser and colleagues (2016) with the aim to evaluate perceived self-efficacy in parents of children with atypical development and/or intellectual disability. The strength of this brief inventory (24 items) is the parallel evaluations of the child's adaptive profile (both prosocial and problem behaviors) and the caregiver's perceived efficacy in handling the same child-emotional/behavioral problems. Therefore, the CAPES-DD is a more agile tool than other longer questionnaires, such as the Child Behavior Checklist (CBCL; Achenbach and Rescorla, 2001) [24], to assess the behavioral competence and internalizing/externalizing problems in children. The CAPES-DD directly links the parent's perceptions of the severity of their children's maladaptive behaviors with self-confidence and challenges of facing those problems.

The main aim of this study was to develop the Italian version of the CAPES-DD by assessing self-efficacy in parents of children with Autism Spectrum Disorders (ASD) and Typically Developed (TD) children. To pursue the above scope the hypotheses to be tested were:

- Positive correlations between the CAPES-DD measures and the PSOC measures are expected (convergent validity).
- The intensity of behavioral and emotional problems in ASD/TD children, as perceived by parents, has negative correlations with CAPES-DD measures of self-efficacy.
- Parents of the clinical group (ASD) report lower levels of self-efficacy than parents of typically developing children (TD). These results are expected both with PSE measures detected at a general level through the PSOC scale [4], and at a task-specific level trough the CAPES-DD questionnaire.
- Finally, since studies comparing self-efficacy in mothers and fathers of ASD children are scarce (see, for example, Hastings and Brown, 2002; May et al., 2015) [11,25], PSE as a function of parent's gender is explored. Evidence reports that mothers generally experience more stress than fathers, but also a greater level of PSE, presumably because fathers have fewer opportunities to practice their role, especially when the child has a disability [26]. However, since previous studies vary in the measures for PSE and other associated constructs (parental stress, coparenting, etc.), in this study the hypothesis about the existence of differences in PSE levels between mothers and fathers is exploratory.

Method

Participants

Sixty parents of ASD children were involved, 28 fathers and 32 mothers aged 27 to 54 years ($M_{fathers}$ = 49.9, $SD_{fathers}$ = 6.4; $M_{mothers}$ = 38.8, $SD_{mothers}$ = 6.5). Families came from the metropolitan area of Messina (Sicily, Italy). Most parents were married (88.3%) and had a high school (61.7%) or degree (20%) educational level. Inclusion criteria were having a child (2 - 16 y/o) diagnosed with ASD from an expert multidisciplinary team (child neuropsychiatrist, psychologist, and speech/language therapists) according DSM-5 criteria (APA, 2013) [27], cohabiting with the child, being Caucasian and Italian native speakers. For most of the children (n=25), both parents participated in the study, while for 10 cases only one parent participated (7 mothers and 3 fathers).

A convenient group of 50 parents (26 mothers and 24 fathers) of 26 typically developing children (TD) was also involved. Parents were randomly selected among volunteers from public schools in the same metropolitan area of Messina pairing their child for gender/age with ASD children. Parents' age ranged between 25 and 56 years (M_{age} = 36.7, SD_{age} = 8.5). The educational level in this group was similar to that of the ASD group (64% high school and 22% degree). There were differences between the two groups for marital status, with a higher percentage cohabiting parents, that is, unmarried couples or new couples of separated/divorced parents (Table 1).

	ASD group (n= 60)	TD group (n= 50)	Chi-square statistic
Mother	32 (53.3 %)	26 (52.0 %)	n.s.
Father	28 (46.7%)	24 (48.0%)	
Marital status			
Married	53 (88.3%)	36 (72.0%)	$\chi^2(3) = 14.57$ **
Separated/Divorced	5 (8.3%)	4 (8.0%)	
Single parent	2 (3.3%)	0 (0.0%)	
Cohabiting couple	0 (0.0%)	10 (20%)	
Educational level			
Primary school	1 (1.7%)	0 (0.0%)	n.s.
Secondary school	10 (16.7%)	7 (14.0%)	
High school	37 (61.7%)	32 (64.0%)	
Degree	12 (20.0%)	11 (22.0%)	
**p = .002, two-tailed			

Table 1: Participants' demographic characteristics.

Procedure

Before the questionnaires were administered, each parent received a verbal explanation about the purposes of the research by trained student of psychology. No compensation was expected. The parents participated as volunteers filling out the questionnaires and expressing their feelings and experience in childrearing. Written informed consent was signed from parents to study participation and to collect personal data. In the ASD group, the clinical data of the child (diagnosis and ADOS-2 scores) were obtained from medical records. Parents of ASD children were directly recruited and answered the questionnaires in a quiet room at the ambulatory of Child and Adolescent Psychiatry Unit of AOU Policlinico "G. Martino" of Messina. In the TD group, parents were invited through the school and then by a student of psychology they received the questionnaires to fill in at home.

Measures

Personal data

The personal data included two sections for parent's and child's characteristics respectively. The first section collected parent's demographic data (sex, age, educational level, and marital status). The demographics of children were age and sex. In addition, for ASD children data concerning the evaluation of the ASD severity (ADOS-2 scores) have been obtained from the medical records.

Child's measures

The Strengths and Difficulties Questionnaire (SDQ; [28]) is a brief screening questionnaire (25 items) assessing negative and positive behavioral attributes of children (3-16 years). In the parent version (SDQ-P, [29]), the respondent is asked to rate on a three-point Likert scale (0 = not true, 1 = somewhat true, and 2 = certainly true) how much each behavior applies to his/her child. The SDQ provides three different subscales [30]: internalizing problems (including emotional symptoms and peer relationship problems, 10 items); externalizing problems (including conduct problems and hyperactivity-inattention, 10 items); prosocial behavior (5 items, reversed). In the first two scales higher scores indicate more severe difficulties, whereas on the prosocial scale higher scores correspond to positive behaviors. The Cronbach's Alphas for the SDQ-P Italian adaptation resulted satisfactory [29].

The COM scale (Questionario sindromi COMpresenti, co-present symptomatic problems) is a brief questionnaire (30 item) developed for the screening of comorbid problems of Italian children [31]. In this study, parents were asked to fill the rating scale to detect the presence of possible developmental disturbances in the TD group. The symptomatic problems assessed are: Conduct Disorder (CD), Oppositional Defiant Disorder (ODD), high-functioning autism (AUT), Anxiety (ANS), Depression (DEP), and Tourette syndrome TIC). Parents are asked to rate the frequency or intensity of behaviors using a four-point Likert scale

(from 0 = Never/For nothing to 3 = Always/ Very much). In the TD group, children who report score > 21 were excluded.

Parent's measures

The Child Adjustment and Parent Efficacy Scale – Developmental Disability (CAPES-DD; [1]) measures the adjustment in children (2-16 y/o) with developmental disabilities and parents' self-efficacy on managing their child's disability related problem. The CAPES-DD reflects a wide range of behaviors that a disabled child may exhibit, including misbehaviors (externalizing and internalizing, for example "Yells, shouts or screams") and prosocial behaviors (e.g., "Shares with others"). The self-report questionnaire has 24 items. The first 16 items correspond to two scales: Intensity Scale in the child adjustment and parents' Self-efficacy. The remaining 8 items refer to the Intensity Scale for prosocial behaviors.

For each item on the intensity scale, the parent must determine how much each behavior applies to his/her child on a four-point Likert scale (from 0 = "not true at all" to 3 = "true of my child very much, or most of the time"). In the self-efficacy scale, the caregiver must express how much he/she feels able to successfully handle a certain problematic behavior of the child using a 10- point Likert scale (from 1 = "certain I can't manage it" to 10 = "certain I can manage it").

The CAPES-DD provides the following intensity scores:

- Behavioral Problems subscale, scores of items 1, 3, 4, 5, 6, 7, 8, 9, 10 and 12 are summed (score range 0- 30);
- Emotional Problems subscale, scores of items 2, 11 and 13 are summed (score range 0-9);
- Total Problems scale score, is obtained by summing the scores of the subscales Behavioral Problems, Emotional Problems and the scores of three additional items (14, 15 and 16). Total score ranges from 0 to 48, with higher scores indicating higher levels of behavior problems in children.

In the original version of the questionnaire (Emser et al., 2016), the reliability scores (Cronbach's Alpha Coefficients) resulted .89 for Behavioral Problems subscale, .71 for Emotional Problems subscale, and .90 for Total Problems scale.

The Self-efficacy scale score is calculated by summing parent's confidence ratings (response scale 1-10) for all behavior problems (items from 1 to 16). Self-efficacy score ranges between 16 and 160, and higher scores indicate greater parenting self-efficacy. The reliability of this scale was excellent (alpha = .94; Emser et al., 2016) [1].

Finally, Prosocial behavior scale score is obtained by summing intensity scale scores for remaining 8 items (numbered from 17 to 24). In the original version, the reliability of this scale was good (alpha =.82; Emser et al., 2016) [1]. Prosocial behavior (with score ranging from 0 to 24) does not contribute to the parent's self-efficacy score. Higher is the score, more positive attribute has the child. In order to develop the Italian adaptation with authors' authorization, the questionnaire was translated from English independently by two psychology researchers. The two translations were then compared in order to obtain a shared version. Subsequently, this version was revised with a back-translation procedure by an English native-speaking teacher.

The Parenting Sense of Competence Scale (PSOC; Johnston and Mash, 1989) [4] measures parental self-confidence in two subscales: Efficacy (7 items), describing how much the parent feels competent in his/her role (e.g., "I honestly believe I have all the skills necessary to be a good mother/father to my child"); Satisfaction (9 items), measuring motivation and feelings associated with parenting (e.g., "Being a parent makes me tense and anxious", reversed item). The parent is asked to express his/her agreement on a six-point Likert scale ranging from 1 ("Strongly disagree") to 6 ("Strongly agree"). Higher scores indicate greater PSE.

Results

Children characteristics

ASD group consisted of 35 children, 29 males (M_{age} = 5.5 years old, SD_{age} = 3.3) and 6 females (M_{age} =7.7, SD_{age} = 6.7). In the diagnostic phase, the severity of symptoms was measured by ADOS-2 [32], a semi-structured observation tool that provides scores on two core domains for ASD diagnosis (Social Affect, and Restricted and Repetitive Behaviors). Calibrated severity scores (range 0-10) are calculated for these two domains, and a total score is derived from their sum (SAs + RRBs). For the purpose of this study, on the basis of ADOS-2 calibrated severity scores children were divided into three levels of severity (range 0-10): low level (scores between 3 and 4), mild level (scores between 5 and 7) and high level of autistic symptoms (scores between 8 and 10). Associated known medical conditions, such as genetic disorders, hearing/visual sensory deficits, epilepsy, or traumatic brain injury, were exclusion criteria for family's participation in the study.

In the TD group, children had age and gender distributions similar to those of the ASD group children (statistically, no differences emerged). All TD group children reported COM total scores ≤ 21, indicating a low risk for behavioral or emotional symptoms (average group scores were significantly different). When compared to ASD children's measures, obviously significant differences emerged in all autism symptom scales and comorbid symptoms, but not in Tourette symptoms (Table 2).

	ASD (n= 35)	TD (n= 26)	Chi-square or F comparison
Gender			
Male	29 (82.9%)	20 (76.9%)	$\chi^2(1) = 0.33$, n.s.
Female	6 (17.1%)	6 (23.1%)	
Age **Range**	M=6.0 (SD=4.0) 2-16	M=6.3 (SD=3.7) 2-14	F(1, 59) = 0.09 ,n.s.
ADOS (severity of ASD symptoms[1])			
Low	14 (40.0%)		
Mild	16 (45.7%)		
High	5 (14.3%)		
SDQ Behavioral Profile[2]			
Internalizing	5.63 (2.58)	1.74 (1.88)	F(1, 106) = 78.72 ***
Externalizing	6.78 (3.16)	2.74 (2.22)	F(1, 106) = 57.04 ***
Prosocial behaviors	5.18 (2.67)	7.34 (1.60)	F(1, 106) = 24.64 ***
COM questionnaire[2] **Range**	M=16.1 (DS=9.1) 1-41	M=4.9 (DS=4.2) 0-21	F(1, 108) = 63.32 ***
Co-present problems-			
DC	1.87 (1.94)	0.70 (0.93)	F(1, 108) = 15.22***
ODD	2.77 (2.64)	1.16 (1.39)	F(1, 108) = 15.04***
Autism	6.03 (3.32)	0.48 (0.95)	F(1, 108) = 130.81***
Anxiety	3.28 (2.76)	1.72 (1.89)	F(1, 108) = 11.53**
Depression	1.70 (1.47)	0.74 (1.32)	F(1, 108) = 12.79**
Tourette	0.42 (0.67)	0.22 (0.47)	F(1, 108) = 3.07 n.s.
CAPES-DD[2]			
Behavioral problems	9.35 (5.76)	4.34 (2.39)	F(1, 108) = 33.08 ***
Emotional problems	1.53 (1.23)	0.68 (0.71)	F(1, 108) = 18.85 ***
Total problems	12.82 (7.80)	5.60 (2.70)	F(1, 108) = 38.87 ***
Prosocial behaviors	11.33 (4.68)	16.98 (3.12)	F(1, 108) = 53.05 ***

Note: ASD = Autism Spectrum Disorder; TD = Typical Development; SDQ = Strengths and Difficulties Questionnaire; COM = Questionario sindromi COMpresenti; CAPES-DD = Child Adjustment and Parent Efficacy Scale – Developmental Disability.
[1]For ADOS-2 data n = 32, because the measures for three 2-years old children are not available.
[2]These measures derive from parents' reports; therefore, the observations are n = 60 for ASD group and n = 50 for TD group.
** p<.001, two-tailed
*** p<.0001, two-tailed

Table 2: Characteristics of children with Autism Spectrum Disorder or Typical Development.

Reliability of the CAPES-DD measures

Reliability of the CAPES-DD measures were tested with the Cronbach's alpha. Results were excellent for the Self-Efficacy scale (16 items, α = .96); good for the Total Problems scale (16 items, α = .88) and the Behavioral Problems scale (10 items, α = .85); unacceptable for the Emotional Problems scale (3 items, α = .19), maybe due to the small number of items; again, good for the Prosocial Behavior scale (8 items, α = .84). With the exception of the Emotional problems measure, these results are similar to Emser's et al. (2016) [1] ones.

Correlations among CAPES-DD subscales

CAPESS-DD measures proved to be consistent with each other. According to expectations, the correlations tested by Pearson's coefficients were positive between Self-Efficacy and Prosocial Behaviors, and negative between Self-Efficacy and Problem scales. These intensity scales positively correlated each other. In the ASD group, some strong and moderate relationships emerged (Table 3).

Measures	CAPES-DD BP	CAPES-DD EP	CAPES-DD TP	CAPES-DD PB	CAPES-DD SE
CAPES-DD BP	–	.257	.935**	-.216	-.421**
CAPES-DD EP	.609**	–	.463**	-.076	-.294*
CAPES-DD TP	.976*	.725**	–	-.258	-.502**
CAPES-DD PB	-.296*	-.247	-.365*	–	-.071
CAPES-DD SE	-.658**	-.528**	-.686**	.276*	–

Note: CAPES-DD = Child Adjustment and Parent Efficacy Scale – Developmental Disability; BP = Behavioral Problems; EP = Emotional Problems; TP = Total Problems; PB = Prosocial Behaviors; SE = Self-Efficacy.
* p≤.05, two-tailed
** p≤.01, two-tailed

Table 3: Pearson's correlation coefficients between CAPES-DD subscales: ASD group (n = 60) below the diagonal; TD group (n = 50) above the diagonal.

Correlations between child's intensity measures

A control of convergent validity for child's intensity measures was executed by testing the associations between CAPES-DD (both problems and prosocial behaviors) scales and the SDQ (internalizing/externalizing and prosocial behaviors) subscales. Pearson's coefficients were separately calculated for ASD and TD group. Again, the results are coherent with the expectations and all statistically significant for ASD group (Table 4).

	ASD Group r(60)				TD Group r(50)			
Measures	SDQ INT	SDQ EST	SDQ TOT	SDQ PB	SDQ INT	SDQ EST	SDQ TOT	SDQ PB
CAPES-DD – BP	.398**	.754**	.716**	-.549**	.329*	.548**	.589**	-.106
CAPES-DD – EP	.470**	.484**	.576**	-.201	.317*	.153	.300*	-.082
CAPES-DD – TP	.461**	.726**	.732**	-.547**	.293*	.535**	.557**	-.077
CAPES-DD – PB	-.306*	-.310*	-.371**	.616**	-.011	-.101	-.079	.374**

Note: ASD = Autism Spectrum Disorder; TD = Typical Development; CAPES-DD = Child Adjustment and Parent Efficacy Scale – Developmental Disability; BP = Behavioral Problems; EP = Emotional Problems; TP = Total Problems; PB = Prosocial Behaviors; SDQ = Strengths and Difficulties Questionnaire; INT = Internalizing; EXT = Externalizing; TOT = Total.
* p≤.05, two-tailed
** p≤.01, two-tailed

Table 4: Pearson's correlation coefficients between CAPES-DD Self-Efficacy subscale and PSOC measures: ASD group (n = 60) and TD group (n = 50).

Correlations between parents' self-efficacy measures

For a control of convergent validity of self-efficacy measures, the Pearson's correlation coefficients between the CAPES-DD Self-Efficacy scale and the PSOC measures were calculated separately for ASD and TD groups. According to expectations, CAPESS-DD and PSOC measures proved to be consistent with each other, but with a very weak strength of relationships (Table 5).

Measures	CAPES-DD SE	PSOC S	PSOC E	PSOC TOT
CAPES-DD SE	–	.153	.293*	.254
PSOC S	.165	–	.538**	.880**
PSOC E	.274*	.096	–	.874**
PSOC TOT	.288*	.800**	.674**	–

Note: CAPES-DD–SE = Child Adjustment and Parent Efficacy Scale-Developmental Disability – Self-Efficacy; PSOC S and E = Parenting Sense of Competence Scale Satisfaction and Efficacy; TOT = Total.
* p≤.05, two-tailed
** p≤.01, two-tailed

Table 5: Pearson's correlation coefficients between CAPES-DD Self-Efficacy subscale and PSOC measures: ASD group (n = 60) below the diagonal; TD group (n = 50) above the diagonal.

Comparisons in parents' self-efficacy measures

The next analysis was the comparisons through MANOVA and ANOVA 2 (Group: ASD vs. TD) x 2 (Gender: father vs. mother) applied to parents' self-efficacy measures. The expected results were higher levels of self-efficacy in parents of TD group and bidirectional for gender. (Table 6) reports analyses for CAPES-DD and PSOC measures.

Parents' gender	ASD group (n= 60)	TD group (n= 50)	Comparisons		
	CAPES-DD – Self-Efficacy M (SD)		Group F (df = 1, 106)	Gender F (df = 1, 106)	Interaction F (df = 1, 106)
Mother	123.94 (24.08)	146.50 (14.56)	33.854, p < .0001	3.604, p = .060	0.204. p = .653
Father	132.39 (20.03)	151.71 (11.85)			
	PSOC – Satisfaction M (SD)		Group F (df = 1, 106)	Gender F (df = 1, 106)	Interaction F (df = 1, 106)
Mother	35.47 (6.34)	36.96 (5.36)	0.001, p = .973	6.419, p = .013	1.700, p = .195
Father	39.75 (6.40)	38.33 (4.74)			
	PSOC – Efficacy M (SD)		Group F (df = 1, 106)	Gender F (df = 1, 106)	Interaction F (df = 1, 106)
Mother	27.97 (5.80)	30.08 (5.75)	6.248, p = .014	2.667, p = .105	0.146, p = .703
Father	29.21 (4.96)	32.08 (3.75)			
	PSOC – Total M (SD)		Group F (df = 1, 106)	Gender F (df = 1, 106)	Interaction F (df = 1, 106)
Mother	63.44 (9.45)	67.04 (9.55)	2.315, p = .131	7.190, p = .009	0.419, p = .519
Father	68.96 (7.56)	70.42 (7.71)			

Note: ASD = Autism Spectrum Disorder; TD = Typical Development; CAPES-DD = Child Adjustment and Parent Efficacy Scale – Developmental Disability; PSOC = Parenting Sense of Competence Scale.

Table 6: Parents' self-efficacy statistics.

Finally, the parents' Self-efficacy measures of CAPES-DD were analyzed as a function of ASD symptom severity. No significantly difference emerged (Table 7).

Symptom severity level	M (SD) n = 60	Comparison F(df = 1, 57)
1	126.54 (25.76)	0.22, p = .80
2	127.56 (19.70)	
3	132.44 (23.15)	

Table 7: Parents' self-efficacy statistics as a function of ASD symptom severity.

Discussion

From early childhood, parents of ASD children face challenges that affect their self-efficacy, that is, the perceived competence in parenting and in managing effectively child's problematic behaviors. Self-efficacy is influenced by daily parent-child interactions: often caregivers of "difficult child" experience frustrations and distress, developing low self-efficacy [11,3]. When parents perceive their child's misbehavior as an insurmountable problem, they feel disheartened and blame themselves [33]. Conversely, self-efficacy can work as a protection factor on the parent's adjustment: high PSE levels correlate with hardiness, that is, the perception of control on family adversities and self-confidence in coping with stressors [19]. However, despite the importance of self-efficacy in understanding the parent's adjustment to child's disability, there are not many questionnaires specifically developed to measure self-efficacy beliefs in parents of children with autism or other developmental disabilities. Furthermore, the tools available must be adequately adapted taking into account the cultural context of the families [7,34-36]. This study aimed to offer the preliminary data for the adaptation of the CAPES-DD with Italian parents. Compared to other questionnaires assessing PSE, the CAPES-DD has the advantage of being short and linking parent's perceived competence to the specific behavioral and emotional problems of the child with developmental disorders.

The results provide the first evidence that this Italian version of the CAPES-DD is a reliable and valid questionnaire to assess PSE with ASD children. The CAPES-DD measures parental self-efficacy at a task-specific level, that is, concrete demands with difficult children (e.g., my child does not cooperate with requests). The CAPES-DD self-efficacy scale obtained a very good convergence with a general self-efficacy measure (PSOC), and excellent Cronbach's alpha (.96) for reliability.

Secondly, as expected parents of ASD children reported significantly lower levels of self-efficacy compared with parents of typically developed children. These differences emerged both when PSE is assessed at a task-specific level (CAPES-DD questionnaire) and at a general level (PSOC questionnaire). Regarding parents' gender, some differences emerged depending on the level at which PSE is measured. Comparing PSOC scales, fathers reported significantly higher levels of satisfaction, whereas no significant gender differences emerged for perceived efficacy. Similarly, CAPES-DD self-efficacy scores resulted higher for fathers, but differences are at the limit of statistical significance ($p = .06$).

Taken together, these results suggest to keep separate in researches the individual experience of fathers and mothers, and to explore others individual or contextual factors (such as perceived stress, support, couple relationship, etc.) that could affect parents' well-being and beliefs on parenting [8,26].

Third, this study evaluated whether Intensity Scales of the CAPES-DD assessing child's behavioral/emotional problems converge with other child's misbehavior measures (SDQ scales). Correlations between behavioral problems subscale of CAPES-DD and corresponding externalizing subscale of SDQ resulted strong (.75) and moderate (.55), respectively for ASD and TD children. Conversely, weak correlations resulted for emotional problems (CAPES-DD) and internalizing problems (SDQ) both in ASD (.47) and TD (.32) group.

The intensity scales achieved a good reliability, respectively .88 for total problems scale and .85 for behavioral problems. Conversely, reliability resulted very poor for the emotional problems scale ($\alpha = .19$), whereas in the original study it was .71. Emser and colleagues (2016) believe that the small number of items (3 items) may explain the lower internal consistency of the emotional problems scale compared to other scales, and therefore they advise against its use for applied researches. It should also be noted that original CAPES-DD (Emser et al., 2016) was tested with a much larger number of participants than this study ones; the original sample was heterogeneous comprehending parents of children with various developmental disabilities (i.e., epilepsy, physical or sensory disability, intellectual disability, specific learning difficulty, etc.), and not just ASD children as in this study. It is plausible that the emotional problems presented by the CAPES-DD (i.e., "Seems unhappy or sad") are not suitable for grasping the emotion regulation difficulties in ASD children including excessive fears, lack of anger control, aggressive behaviors, and self-injuries [37]. Empirical studies evidence associations between the typical manifestations of emotional dysregulation in ASD children and their social-communicative deficits: for example, children often "exhibit disruptive behaviors in the face of negative emotions (e.g., engaging in tantrums or physical aggression when frustrated or angry) while others may experience emotions in a way that interferes with their goal-directed behaviors (e.g., overexcitement or frustration impeding with one's ability to maintain focus on a task/activity or interact successfully with others; cfr. Berkovits, Eisenhower, and Blache, 2016) [38]. In addition, these patterns of

emotional dysregulation negatively impact parental wellbeing and increase distress in an attempt to manage them in daily routines or social situations [39,40]. Therefore, in order to complete the assessment, it may be useful to integrate these few items of the emotional problems of the CAPES-DD with a scale more sensitive to capture emotional dysregulation in ASD children (see for example Samson et al., 2014) [41].

There are other limitations in this study. Although data from the first application of this Italian version of CAPES-DD are encouraging, the group of volunteer parents involved in was small. Further studies are needed to test the factor structure and to derive the psychometric characteristics of the CAPES-DD scales from more representative samples. Second, it may be worthwhile to involve parents of children with other disabilities besides autism spectrum disorders, since the nature or severity of disability can differently impact parent's self-efficacy and well-being [42].

In conclusion, also this Italian version of the CAPES-DD may have several advantages over other existing measures of PSE. First, as far as we know none of the existing questionnaires directly put PSE in connection with the child's adjustment profile (both problems and socially desirable behaviors). Secondly, it is a short scale that can represent a valid alternative to other more time-consuming tools, such as Achenbach's Child Behavior Checklist (CBCL, Achenbach and Rescorla, 2001) [24]. However, results suggest a weakness for the emotional problems scale, because it does not seem suitable for assessing the emotional dysregulation problems typical in ASD. Therefore, the CAPES-DD can help researchers and practitioners to conduct a simple screening of child's adjustment (both problems and prosocial behaviors) linking self-efficacy to parent's childrearing experience and perceived difficulties. Professionals working with families can then use it to complete the assessment of parent's adjustment to child's developmental disability. PSE is also a key construct in planning empirically-based interventions for enhancing parenting competence and to meet the psychological needs of parents of disabled children. Behavioral parent trainings are well known programs aimed to increase positive discipline in parents, teaching them how to effectively manage stressful situations (child's noncompliance, aggression, self-injury, etc.) and reinforce child's positive behaviors (communication, prosocial behaviors, etc.). Studies confirm that the participation to the parent trainings reduces parent's stress in managing child's problems, and increases his/her perceived sense of confidence in childrearing [3,43]. PSE measures in several studies are used as outcome variable to evaluate the effectiveness of family-based intervention. In recent applied studies the CAPES-DD measures resulted sensitive to evidence the effect of behavioral family intervention and increasing in PSE in parents of disabled children [44] and ASD adolescents [45]. Therefore, it is an auspicious the diffusion of the CAPES-DD in future research programs and interventions supporting parents of disabled or ASD children.

References

1. Emser TS, Mazzucchelli TG, Christiansen H, Sanders MR (2016) Child Adjustment and Parent Efficacy Scale-Developmental Disability (CAPES-DD): First psychometric evaluation of a new child and parenting assessment tool for children with a developmental disability. Research in Developmental Disabilities 53-54:158-177.
2. Coleman PC, Karraker KH (1998) Self-Efficacy and Parenting Quality: Findings and Future Applications. Developmental Review 18: 47-85.
3. Benedetto L, Ingrassia M (2018) Parental self-efficacy in promoting children care and parenting quality. In L. Benedetto, M. Ingrassia (Eds.), Parenting - Empirical Advances and Intervention Resources 31-57.
4. Johnston C, Mash E (1989) A measure of parenting satisfaction and efficacy. Journal of Clinical Child Psychology 18: 167-175.
5. Lamb AE, Biesecker BB, Umstead KL, Muratori M, Bieseckerc LG, et al. (2016). Family functioning mediates adaptation in caregivers of individuals with Rett syndrome. Patient Education and Counseling 99: 1873-1879.
6. Albanese AM, Russo GR, Geller PA (2019) The role of parental self-efficacy in parent and child well-being: A systematic review of associated outcomes. Child Care Health and Development 45: 333-363.
7. Jones TL, Prinz RJ (2005) Potential roles of parental self-efficacy in parent and child adjustment: A review. Clinical and Psychology Review 25: 341-363.
8. Scannell C (2020) Parental self-efficacy and Parenting through adversity. In L. Benedetto, M. Ingrassia (Eds), Parenting. Studies by an ecolcultural and transational perspective.
9. Batool SS, Khurshid S (2015) Factors Associated with Stress Among Parents of Children with Autism. Journal of the College of Physicians and Surgeons Pakistan 25: 752-756.
10. Bandura A (1997) Self-efficacy: The Exercise of Control. New York: W.H., Freeman and Company.
11. Hastings RP, Brown T (2002) Behavior Problems of Children With Autism, Parental Self-Efficacy, and Mental Health. American Journal of Mental Retardation 107: 222-232.
12. Baker JK, Messinger DS, Lyons KK, Grantz CJ (2010) A Pilot Study of Maternal Sensitivity in the Context of Emergent Autism. Journal of Autism and Developmental Disorders 40: 988-999.
13. Stuart M, Mcgrew JH (2009) Caregiver burden after receiving a diagnosis of autism spectrum disorder. Research in Autism Spectrum Disorders 3: 86-97.
14. Giallo R, Wood CE, Jellett R, Porter R (2011) Fatigue, Wellbeing and Parental Self-Efficacy in Mothers of Children With an Autism Spectrum Disorder. Autism 17: 465-480.
15. Wang Y, Xiao L, Chen RS, Chen C, Xun GL, et al. (2018) Social impairment of children with autism spectrum disorder affects parental quality of life in different ways. Psychiatry Research 266: 168-174.
16. Benedetto L, Rosano M, Zampino A (2012) Credenze genitoriali e stress nell'adattamento familiare alla disabilità [Parental beliefs and stress in family adjustment to disability]. Autismo e Disturbi dello sviluppo 10: 33-52.
17. Daulay N, Ramdhani N, Rochman Hadjam N (2018) Sense of Competence as Mediator on Parenting Stress. The Open Psychology Journal 11: 198-209.

18. Rezendes DL, 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 395190.

19. Weiss JA, Robinson S, Fung S, Tint A, Chalmers P, et al. (2013) Family hardiness, social support, and self-efficacy in mothers of individuals with Autism Spectrum Disorders. Research in Autism Spectrum Disorders, 7: 1310-1317.

20. Wittkowski A, Garrett C, Calam RD (2017) Self-Report Measures of Parental Self-Efficacy: A Systematic Review of the Current Literature. Journal of Child and Family Studies 26: 2960-2978.

21. Arellano A, Denne L, Hastings RP, Hughes JC (2017) Parenting sense of competence in mothers of children with autism: Associations with parental expectations and levels of family support needs. Journal of Intellectual & Developmental Disability 44: 212-218.

22. Sarabi J, Hassanabadi H, Mashhadi A, Asghari N (2011) The effectiveness of parent training on self-efficacy of mothers of children with autism. Journal of Fundamental of Mental Health 13: 84-93.

23. Deb S, Retzer A, Roy M, Acharya R, Limbu B, et al. (2020) The effectiveness of parent training for children with autism spectrum disorder: a systematic review and meta-analyses. BMC Psychiatry 20**:** 583.

24. Achenbach TM, Rescorla LA (2001) Manual for the ASEBA School-Age Forms and Profiles : an integrated system of multi-informant assessmentBurlington, VT: University of Vermont, Research Center for Children, Youth & Families.

25. May C, Fletcher R, Dempsey I, Newman L (2015) Modeling Relations among Coparenting Quality, Autism-Specific Parenting Self-Efficacy, and Parenting Stress in Mothers and Fathers of Children with ASD. Parenting 15: 119-133.

26. Kersh J, Hedvat TT, Hauser-Cram P, Warfield ME (2006) The contribution of marital quality to the well-being of parents of children with developmental disabilities. Journal of Intellectual Disabilities Research 50: 883-893.

27. American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.).

28. Goodman R (2001) Psychometric properties of the Strengths and Difficulties Questionnaire. Journal of American Academy of Child and Adolescent Psychiatry 40: 1337-1345.

29. Tobia V, Marzocchi GM (2018) The Strengths and Difficulties Questionnaire-Parents for Italian School-Aged Children: Psychometric Properties and Norms. Child Psychiatry and Human Development 49: 1-8.

30. Goodman R, Lamping DL, Ploubidis GB (2010) When to use broader internalizing and externalizing subscales instead of the hypothesized five subscales of the Strength and Difficulties Questionnaire (SDQ): data from British parents, teachers and children. Journal of Abnormal Child Psychology 38: 1179-1191.

31. Cornoldi C, Molin A, Marcon V (2004) Il Questionario COM: uno strumento di identificazione di problematiche associate al DDAI [COM Questionnaire: A scale for the identification of disorders comorbid with ADHD]. Difficoltà di Apprendimento 9: 391-412.

32. Lord C, Rutter M, DiLavore P, Risi S, Gotham K, et al. (2012) Autism Diagnostic Observation Schedule–Second Edition (ADOS-2). Western Psychological Corporation. Los Angeles, CA, USA

33. Čolić M, Milačić-Vidojević I (2019) Self-blame in parents of children with autism spectrum disorder and children with physical disabilities: The role of a child's problem behavior and personality traits. Specijalna Edukacija i Rehabilitacija 18: 391-417.

34. Chong WH, Kua SM (2017) Parenting self-efficacy beliefs in parents of children with autism: Perspectives from Singapore. American Journal of Orthopsychiatry 87: 365-375.

35. Mejia A, Filus A, Calam R, Morawska A, Sanders MR (2016) Validation of the Spanish version of the CAPES: A brief instrument for assessing child psychological difficulties and parental self-efficacy. International Journal of Behavioral Development 40: 359-372.

36. Mohammadi F, Rakhshan M, Molazem Z, Zareh N, Gillespie M (2020) Development of Parental Competence Scale in Parents of Children with Autism. Journal of Pediatric Nursing 50: e77-e84.

37. Samson AC, Hardan AY, Lee IA, Phillips JM, Gross JJ (2015) Maladaptive behavior in autism spectrum disorder: The role of emotion experience and emotion regulation. Journal of Autism and Developmental Disorders 24: 3424-2432.

38. Berkovits L, Eisenhower A, Blache J (2016) Emotion Regulation in Young Children with Autism Spectrum Disorders. Journal of Autism and Developmental Disorders 47: 68-79.

39. Gulsrud AC, Jahromi LB, Kasari C (2010) The co-regulation of emotions between mothers and their children with autism. Journal of Autism and Developmental Disorders 40: 227-237.

40. Boonen H, Maljaars J, Lambrechts G, Zink I, Van Leeuwen K, et al. (2014) Behavior problems among school-aged children with autism spectrum disorder: associations with children's communication difficulties and parenting behaviors. Res. Autism Spect. Disord 8: 716-725.

41. Samson AC, Phillips JM, Parker KJ, Shah S, Gross JJ, et al. (2014) Emotion dysregulation and the core of autism spectrum disorder. Journal of Autism and Developmental Disorders 44: 1766-1772.

42. Isa SN, Ishaka I, Rahmanc AA, Saata NZM, Dind NC, et al. (2016) Health and quality of life among the caregivers of children with disabilities: A review of literature. Asian Journal of Psychiatry 33: 71-77.

43. Bearss K, Burrell TL, Stewart LM, Scahill L (2015) Parent Training in Autism Spectrum Disorder: What's in a Name? Clinical Child and Family Psychology Review 18: 170-182.

44. Aery A, Hodges J, Day J (2018) Effect of School-Based Stepping Stones Triple P on Child and Parent Outcomes. Advances in Social Science, Education and Humanities Research 139: 338-345.

45. Mazzucchelli TG, Jenkinsa M, Sofronof K (2018) Building Bridges Triple P: Pilot study of a behavioural family intervention for adolescents with autism spectrum disorder. Research in Developmental Disabilities 76: 46-55.