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# Parenting Self-Efficacy Scale for Autism Spectrum Disorder: Evidence of Content Validity

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## Abstract

The diagnosis of autism spectrum disorder (ASD) requires changes in the organization of the family routine and in the educational practices employed by their parents or caregivers, due to the characteristics of this condition. In this context, it is important to include them in the child's treatment and development process, and, therefore, to assess the variables associated with specific parenting practices for ASD, with the construct of parental self-efficacy being one of the most relevant. Thus, the aim of the present study was to investigate the evidence of content validity of the Parenting Self-Efficacy Scale for Autism Spectrum Disorder (PSES-ASD). The methodological procedures consisted of analysis by expert judges ( $n = 5$ ) and semantics with parents ( $n = 10$ ). The first version of the PSES-ASD, which had 40 items, after analysis by judges and semantic analysis, became composed of 27, divided into five categories: basic needs and activities of daily living (five items), socialization (seven items), cognitive development (two items), structure and discipline (six items), and treatment/school care (seven items). The results of the analysis showed that the PSES-ASD items are clear, theoretical, and practically relevant, and adequate to the reality of parents of children with ASD. Therefore, it can be concluded that the PSES-ASD was successful in its construction and presented satisfactory content validity evidence according to the psychometric literature.

## Keywords

Autism Spectrum Disorder, Self-Efficacy, Parents, Measure, Psychometry

## 1. Introduction

Autism spectrum disorder (ASD) is a neurodevelopmental disorder, due to per-

sistent deficits in social communication and restricted and repetitive behavior patterns, which affect about 1% of the population, with a male predominance (American Psychiatric Association, 2014). Although early diagnosis can be performed from six months old, most of it is done during school time, and can be classified into three levels of severity, which vary according to the need for support (Muszkat et al., 2014).

Due to its diagnostic characteristics, an autistic child demands special and specific attention, which generates changes in family dynamics and impacts the daily lives of people who live with them (Sprovieri & Assumpção Jr., 2001). As it presents itself as a fundamental part of child development, especially for children with a disorder, the family, and especially caregivers, are seen as indispensable partners in treatment and development, and it is necessary to include them in this process (Volkmar & Wiesner, 2019). Identifying the quality of the practices of parents or caregivers regarding the task of caring, for example, of an autistic child becomes a significant part of this work, since not only stress, anxiety, and depression, among other emotional changes, are found in their lives (Lindsey & Barry, 2018; Fávero & Santos, 2005; Karst & Van Hecke, 2012).

A construct involved with this theme is the one of parental self-efficacy. Self-efficacy is a self-referential construct, conceptualized as the belief in the ability to organize and execute the course of an action required to generate given results, which may vary according to some principles: magnitude, that is, the levels of difficulty for execution of a given task; in generality, because some beliefs of effectiveness in certain tasks can be generalized to others that need a similar or transferable skill set; and by strength, as it can be classified as either strong or weak (Bandura, 1977, 1997).

Parental self-efficacy, specifically, concerns the extent to which parents or primary caregivers feel competent or confident in carrying out tasks or activities related to parenting (Glatz & Trifan, 2019). This construct in the context of the ASD proves to be very important to be investigated, both to assess the perception of parents and its relationship with other variables associated with parenting, such as quality of care and coping with problems related to it (Salas et al., 2017; Smart, 2016; Weiss et al., 2013). Furthermore, it is related to the mental health and personal satisfaction of the caregiver (Çattik & Aksoy, 2018; García-Lopez, Sarriá, & Pozo, 2016; Burke & Heller, 2016) and can be an integral part of the assessment of intervention or training programs with parents of children with ASD or to conduct professionals in guiding these parents in clinical settings (Solish & Perry, 2008). Thus, the use of an instrument to assess parental self-efficacy for ASD becomes an important ally in the process of treatment and intervention with families who have been diagnosed with ASD.

Although there are several instruments to assess parental efficacy beliefs in general (Frantzen et al., 2017), regarding ASD, few instruments have been created to assess this construct. In fact, May et al. (2015) point out the lack of an instrument specifically developed to assess parental self-efficacy in parents of

children with ASD. Thus, this article aims to present the process of construction and identification of content validity of an instrument entitled Parental Self-Efficacy Scale for Autism Spectrum Disorder—PSES-ASD. More specifically, the objectives of the present study were to 1) develop the items for the scale and 2) identify content validity with both professionals and targeted population.

The content validity of an instrument is assessed by analyzing a representative sample of behaviors that express the latent trait of the underlying construct. These analyzes are usually made by expert judges in the area in which the instrument will be used or in the construct itself. The agreement index among the judges will indicate whether the instrument presented evidence of content validity (American Educational Research Association—AERA, APA, & National Council on Measurement in Education—NCME, 2014). In the same direction, the semantic analysis is carried out to verify the clarity of the instrument's wording by a sample of its potential respondents, which is also evaluated through the agreement analysis (International Test Commission—ITC, 2001). It is important that both analyzes are carried out so that both specialist professionals and the instrument's target audience agree that it is clear and that the content is in line with what happens in practice.

## 2. Methods

### 2.1. Participants

The stage of analysis of judges had the participation of five professionals trained in Psychology and with a doctorate degree. All participants acted as teachers in higher education institutions and two of them also acted as clinical psychologists. Two participants had work experience with ASD and three had experience with self-efficacy scale construction. The inclusion criteria used were the publication of at least two scientific articles related to ASD or self-efficacy, proven through the analysis of the Lattes Curriculum, and the only exclusion criterion chosen was the report of not understanding any instruction on the application instrument administered or the instructions given in the analysis protocol.

The semantic analysis stage had 10 parents of children with a closed diagnosis of ASD. Most of the sample consisted of biological mothers ( $n = 8$ ) and residents of the state of Mato Grosso ( $n = 9$ ). Only two participants chose to carry out the interview in person. **Table 1** shows data regarding gender, age of children, state of residence, number of children with ASD and whether the child(ren) in question is biological or adopted. The inclusion criteria were being a father, mother or guardian of a child diagnosed with ASD aged between six and twelve years, and the only exclusion criterion adopted was the report of not understanding the Semantic Analysis Registration Protocol.

### 2.2. Instruments

Parental Self-Efficacy in the Autistic Spectrum Disorder Scale (PSES-ASD): the scale consists of 40 items that contain statements about possible beliefs and be-

haviors presented by parents, divided into five categories: 1) basic needs and activities of daily living; 2) socialization; 3) cognitive development; 4) structure and discipline; and, finally, 5) care with treatment/school. The responses to the items, which start with the phrase “I believe I can...”, are based on a four-point Likert scale, consisting of: a) Never; b) Few times; c) Many times; and d) Always. The score can range from 0 to 120, in which the higher the score, the greater the belief of maximum effectiveness by the father, mother or caregiver. It does not present studies on its validity evidence prior to the one presented in this article. In **Table 2** it is possible to observe some examples of items.

Judge Analysis Protocol: instrument built for this research; it initially presents a brief description of the purpose of the test; the evaluated construct and the categories of analysis used in the scale and points out instructions so that the judges can carry out their assessment of the items. Next, these participants

**Table 1.** Profile of semantic analysis participants.

Gender	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
	F	F	F	F	F	F	M	F	M	F
Age of child(ren) with ASD	7	6; 9	10	8	12	6	6	10	8	6
Place of residence	PA	MT	MT	MT	MT	MT	MT	MT	MT	MT
Number of children with ASD	1	2	1	1	1	1	1	1	1	1
Biological/ Adoptive	Biological	Biological	Biological	Biological	Biological	Biological	Biological	Biological	Adoptive	Biological

MT = Mato Grosso; PA = Pará.

**Table 2.** Items prepared for the PSES-ASD and respective categories.

Item	Category	Item	Category
“I believe I can...”		“I believe I can...”	
Maintain a sleep routine for my child	A	Calm my child when he/she is agitated due to some stimulus, such as noise or excessive light	A
Make my child respond when someone talks to him/her	B	Teach my child to respect the other person’s turn to talk	B
Help my child to stay focused on the tasks he/she does at home	C	Understand when my child wants to tell me something, even if he/she has difficulties	C
Control the time my child spends on the activity, object or subject of interest	D	Make my child obey when I ask for something	D
Make my child take medicines when instructed by the doctor	E	Favor the integration of my child at school in the relationship with schoolmates, teachers and school employees	E

A—Basic needs and activities of daily living; B—Socialization; C—Cognitive development; D—Structure and discipline; E—Beware of treatment/school.

should assess which theoretical category each item belonged to, the clarity of writing, theoretical and practical relevance, and operationalization. Operationalization referred to the success in transporting the theoretical content of the construct to observable actions and behaviors. The evaluation was carried out both quantitatively, through scores on a 3-point Likert scale (1 = no; 2 = partially; 3 = yes), and qualitatively, through open-ended essay questions.

**Registration Protocol for Semantic Evaluation:** the protocol was built for this research; it is divided into two parts, the first for analyzing the clarity and understanding of the items and the second for the qualitative assessment of the participants about the correspondence of the items with the reality they experience. In the first part, a table with the 27 items resulting from the analysis of scale judges and a field to mark whether the item was understood (UI) or if the item was not understood (NU) is presented. The second part presents questions regarding the adequacy of the items, which answers are made in a discursive and qualitative way, and requests for suggestions, if they wanted to contribute in this way as well.

### 2.3. Data Collection

This study was submitted to the Research Ethics Committee—Humanities, of the Federal University of Mato Grosso, under the number CAAE 19618619.7.0000.5690, and was approved according to the opinion number 3.593.733, of September 23, 2019.

For the judges' analysis, the professionals were searched for convenience and selected according to the inclusion and exclusion criteria. Subsequently, a request to participate in the study was sent via e-mail along with the Informed Consent Form, the PSES-ASD instrument and the Judges Analysis Protocol. A period of 45 days was stipulated for the resubmission of signed and answered documents.

In a second moment, the items that did not obtain substantial or almost perfect agreement (Landis & Koch, 1977) were redone and submitted to a second analysis with the same expert judges, and the study was subsequently completed. It is noteworthy that the items that did not obtain agreement in the second stage were excluded.

For the semantic analysis, the participants were searched for convenience through the indication of health professionals who worked in specialized care for people with ASD, multidisciplinary clinics and support associations for people with ASD, such as the Associação Amigos do Autista (AMA) of Cuiabá. The first contact was made through text messages via WhatsApp®, in which interest in participation was confirmed and the form, day and time for the collection to be collected were agreed. The collection was carried out pending the signing of the Informed Consent Form.

The collection format was through individual interviews, under the mediation of the Semantic Analysis Registration Protocol, which could be done in person,

with respect to the safety standards implemented for the prevention of contagion by COVID-19 (open and airy place, use of masks, distance of at least two meters), or by videoconference. The duration of this interview ranged from twenty minutes to one hour.

## 2.4. Data Analysis

Data from the judges' analysis and from the semantic analysis were transferred to Excel<sup>®</sup> spreadsheets to assess the degree of agreement using the Fleiss' Kappa measure. This measure is commonly recommended for analyzes of agreements in the construction of instruments in the health area and is considered useful for categorizing groups of objects (items, in this case) into nominal categories, being indicated for studies with three judges or more (Alexandre & Coluci, 2011). To interpret their results, the following classification index was followed (Landis & Koch, 1977):  $\text{Kappa} < 0$  = no agreement; between 0 and 0.19 = poor agreement; between 0.2 and 0.39 = low agreement; between 0.4 and 0.59 = moderate agreement; between 0.6 and 0.79 = substantial agreement; and between 0.8 and 1 = almost perfect agreement.

After a first analysis of these results in the study by judges, the items that did not obtain a satisfactory agreement ( $>0.6$ ) were modified based on the notes and submitted to a new analysis using the Fleiss Kappa measure. Items that did not obtain satisfactory agreement in this second analysis were excluded from the instrument. Only items with substantial and almost perfect agreement were kept in the PSES-ASD, even after its revision.

For the analysis of judges, analyses of the values related to the statistical mode in the "category" dimension were also performed as an auxiliary data to demonstrate the most suitable category for each item. Due to the odd number of participating judges, the items that did not show a mode were also considered non-concordant. Items that did not receive responses from all participants were excluded from the sample.

For the qualitative questions of both the judges' analysis and the semantic analysis, the answers were divided by items and grouped as suggestions, based on the changes made on the items that did not reach acceptable agreement values according to the quantitative analyses, as well as on other items, if it were convenient.

Specifically in the semantic analysis, the items were classified into UI and NU. Kappa analysis was performed from these classifications.

## 3. Results

The PSES-ASD was sent for analysis by judges to carry out the assessment of five dimensions: Category, Clarity of items, Theoretical relevance, Operationalization and Practical relevance. Regarding the Category, which objective was to verify whether the items fit into the theoretical categories they were originally thought of, 27 items showed satisfactory agreement between the evaluators. Interestingly, item 21 ("Preventing my child from putting himself/herself in dan-



gerous situations”), despite showing substantial agreement, had its category changed from “Basic needs and activities of daily living” to “Cognitive development”, according to the analysis of the judges. **Table 3** presents the theoretical category predictions, agreement indices and evaluation mode.

The “Item Clarity” dimension sought to assess whether the items were well written and readable. For this purpose, the judges needed to indicate, on a scale ranging from 1 to 3, whether the items complied with these requirements (1 = no; 2 = partially; 3 = yes). **Table 4** summarizes the results presented for each item and the agreement index between the judges.

In total, 35 items showed satisfactory agreement indices. The others were subjected to a new analysis. For this dimension, a qualitative analysis was also performed, in which the judges were asked to talk about possible changes that the items could have in their writing. **Table 5** shows some of the suggested modifications requested for 13 items. Although certain items ( $n = 7$ ) had substantial agreement rates among the judges, the notes made were considered and rewritten. In addition, the request to change the term “my child” was also considered for the rewriting of the instrument in general, but it did not go through the second analysis.

**Table 6** presents the results regarding “Theoretical Relevance”. The data showed that 39 items had satisfactory indices.

**Table 7** presents the results referring to the “Operationalization of the Construct”. It was observed that 37 items were classified with satisfactory indices.

Finally, the dimension “Practical Relevance” aimed to verify whether the instrument had a satisfactory number of items, whether its full application is feasible in different contexts, and other opinions about the use of the instrument. One of the evaluators did not answer about this dimension. The results found the PSES-ASD as a relevant instrument and with the possibility of its full application in a single session in the clinical context, in addition to the link between the actual symptoms of ASD to the daily lives of caregivers and its benefits for the process of parental guidance as positive aspects. The importance of making clear in the manual the audience the scale is aimed at was also explained—namely, parents or caregivers of children with ASD between six and twelve years old and that, despite trying, the possibility of failure in certain actions exists and does not depend on the perception of effectiveness of the parents or caregiver.

Briefly, when analyzing the five dimensions evaluated by the judges (Category, Clarity of items, Theoretical relevance, Operationalization and Practical relevance), 15 items did not obtain substantial agreement in at least one of them, and, therefore, were submitted to a new analysis. In addition, three other items were also reformulated by the researchers themselves and submitted for this new evaluation, which were items 14, 27 and 34. After the second analysis, which included the participation of only three judges, due to sample loss, only five items were considered satisfactorily concordant when all five dimensions evaluated were analyzed. Thus, after the study by judges, the PSES-ASD was composed of 27 items.

**Table 3.** Analysis of agreement between judges for the “Category” dimension.

Items	Prediction	Judge A	Judge B	Judge C	Judge D	Judge E	Mode	Kappa measure
1	1	1	1	1	1	4	1	0.6*
2	2	2	2	2	2	2	2	1
3	3	3	3	3	5	5	3	0.4
4	4	4	4	4	3	4	4	0.6*
5	5	5	4	1	1	1	1	0.3
6	1	1	1	1	1	5	1	0.6*
7	2	2	2	2	2	3	2	0.6*
8	3	3	3	3	3	5	3	0.6*
9	4	4	3	3	1	4	-	0.2
10	5	5	5	5	5	5	5	1*
11	1	1	1	1	1	1	1	1*
12	2	2	2	2	2	2	2	1*
13	3	3	3	3	5	5	3	0.4
14	4	4	4	4	2	4	4	0.6*
15	5	5	5	5	5	5	5	1*
16	1	1	1	1	1	1	1	1*
17	2	2	2	2	2	2	2	1*
18	3	3	1	1	3	3	3	0.4
19	4	4	4	4	4	4	4	1*
20	5	5	5	5	5	5	5	1*
21	1	1	3	3	3	3	3	0.6*
22	2	2	2	2	2	2	2	1*
23	3	3	3	2	2	2	2	0.4
24	4	4	4	4	4	4	4	1*
25	5	5	5	2	5	5	5	0.6*
26	1	1	4	1	1	1	1	0.6*
27	2	2	2	2	2	3	2	0.6*
28	3	1	1	1	4	3	1	0.3
29	4	4	4	3	4	4	4	0.6*
30	5	1	1	1	4	3	1	0.3
31	2	4	2	2	2	2	2	0.6*
32	1	2	1	1	3	3	-	0.2
33	4	4	2	4	5	3	4	0.1
34	5	5	5	5	5	5	5	1*
35	3	3	4	3	4	5	-	0.2
36	1	2	1	1	2	2	2	0.4
37	3	3	2	3	3	2	3	0.4
38	5	5	5	5	5	5	5	1*
39	4	4	4	4	4	4	4	1*
40	2	2	2	2	2	2	2	1*

\* Fleiss’ Kappa measure with substantial agreement; Categories: 1—Basic needs and activities of daily life, 2—Socialization, 3—Cognitive development, 4—Structure and discipline, 5—Beware of treatment/school.

**Table 4.** Analysis of agreement between judges for the “Clarity” dimension.

Items	Judge A	Judge B	Judge C	Judge D	Judge E	Kappa measure
1	3	3	3	3	3	1*
2	2	3	3	3	3	0.6*
3	3	3	3	3	3	1*
4	3	3	3	3	3	1*
5	3	3	3	3	3	1*
6	3	3	3	3	3	1*
7	3	3	3	3	3	1*
8	3	3	3	3	2	0.6*
9	3	3	3	3	2	0.6*
10	3	3	3	3	3	1*
11	3	3	3	3	3	1*
12	3	3	3	3	2	0.6*
13	3	3	3	3	2	0.6*
14	3	3	3	3	2	0.6*
15	3	3	3	3	3	1*
16	3	3	3	3	3	1*
17	3	3	3	3	3	1*
18	3	3	3	3	3	1*
19	3	3	3	3	3	1*
20	3	3	3	3	3	1*
21	3	3	3	3	3	1*
22	3	3	3	3	3	1*
23	3	3	3	3	3	1*
24	3	3	3	3	3	1*
25	2	3	2	3	3	0.4
26	3	3	3	3	3	1*
27	3	3	3	3	2	0.6*
28	3	3	3	3	3	1*
29	3	3	3	3	3	1*
30	1	1	1	3	2	0.3
31	3	3	3	1	2	0.3
32	3	3	3	3	3	1*
33	3	3	3	3	3	1*
34	3	3	3	3	1	0.6*
35	2	2	3	3	3	0.4
36	3	3	3	3	3	1*
37	3	3	2	3	2	0.4
38	3	3	3	3	3	1*
39	3	3	3	3	3	1*
40	3	3	2	3	3	0.6*

\* Fleiss’ Kappa measure with substantial agreement.

**Table 5.** Examples of the suggestions for changes pointed out by the judges in the qualitative analysis of the “Clarity” scope.

SUGGESTION
Replace “give in” with “don’t wait”
Add “...behave correctly or appropriately”
Specify where social integration takes place, whether it is in the context of the school with friends, with the physical environment, with the teaching model, etc.
Clarify whether the understanding refers only to the existence of commitment for the child or whether the child must understand the context and behave appropriately
Readjust the item to different socioeconomic realities. Example: “I look for information about the quality of professionals for the treatment of my child”
Replace “punitive strategies” with just “punishment”
Make it clear that the item refers to empathic behavior to avoid variations in understanding
In all items, replace the terms “my child” with “my son”/“my daughter”

**Table 6.** Analysis of agreement between judges for the “Theoretical Relevance” dimension.

Items	Judge A	Judge B	Judge C	Judge D	Judge E	Kappa measure
1	3	3	3	3	3	1*
2	3	3	3	3	2	0.6*
3	3	3	3	3	2	0.6*
4	3	3	3	3	3	1*
5	3	3	3	3	2	0.6*
6	3	3	3	3	3	1*
7	3	3	3	3	2	0.6*
8	3	3	3	3	3	1*
9	3	3	3	3	3	1*
10	3	-	3	3	3	1*
11	3	-	3	3	3	1*
12	3	-	3	3	3	1*
13	3	3	3	3	3	1*
14	3	3	3	3	3	1*
15	2	3	3	3	3	0.6*
16	3	3	3	3	2	0.6*
17	3	3	3	3	3	1*
18	3	3	3	3	2	0.6*
19	3	3	3	3	3	1*
20	3	3	3	3	3	1*

**Continued**

21	3	3	3	3	3	1*
22	3	3	3	3	3	1*
23	3	3	3	3	3	1*
24	3	3	3	3	3	1*
25	3	3	3	3	3	1*
26	3	3	3	3	3	1*
27	3	3	3	3	3	1*
28	3	3	3	3	2	0.6*
29	3	3	3	3	2	0.6*
30	2	1	3	3	3	0.3
31	3	3	3	3	3	1*
32	3	3	3	3	3	1*
33	3	3	3	3	3	1*
34	3	3	3	3	2	0.6*
35	3	3	3	3	3	1*
36	3	3	3	3	3	1*
37	3	3	3	3	3	1*
38	3	3	3	3	3	1*
39	3	3	3	3	3	1*
40	3	3	3	3	2	0.6*

\* Fleiss' Kappa measure with substantial agreement.

**Table 7.** Analysis of agreement between judges for the scope “Operationalization”.

Items	Judge A	Judge B	Judge C	Judge D	Judge E	Kappa measure
1	3	3	3	3	3	1*
2	3	3	3	3	2	0.6*
3	3	3	3	3	3	1*
4	3	3	3	3	3	1*
5	3	3	3	3	3	1*
6	3	3	3	3	3	1*
7	3	3	3	3	2	0.6*
8	3	3	3	3	3	1*
9	3	3	3	3	3	1*
10	2	-	3	3	3	0.5
11	3	-	3	3	3	1*
12	2	-	3	3	3	0.5
13	3	3	3	3	3	1*
14	3	3	3	3	3	1*

## Continued

15	2	3	3	3	3	0.6*
16	3	3	3	3	2	0.6*
17	3	3	3	3	3	1*
18	3	3	3	3	3	1*
19	3	3	3	3	3	1*
20	3	3	3	3	3	1*
21	3	3	3	3	3	1*
22	3	3	3	3	3	1*
23	3	3	3	3	3	1*
24	3	3	3	3	3	1*
25	3	3	3	3	3	1*
26	3	3	3	3	3	1*
27	3	3	3	3	3	1*
28	3	3	3	3	3	1*
29	3	3	3	3	3	1*
30	2	1	2	3	3	0.2
31	3	3	3	3	3	1*
32	3	3	3	3	3	1*
33	3	3	3	3	3	1*
34	3	3	3	3	2	0.6*
35	3	3	3	3	3	1*
36	3	3	3	3	3	1*
37	3	3	3	3	3	1*
38	3	3	3	3	3	1*
39	3	3	3	3	3	1*
40	3	3	3	3	3	1*

\* Fleiss' Kappa measure with substantial agreement.

Afterwards, the scale was submitted to semantic analysis with parents of children with ASD. The results regarding the clarity and comprehension (by choosing between UI or NU) of the items showed that all items had almost perfect agreement according to the adopted classification index, as shown in **Table 8**, which presents the items with the Kappa value.

Qualitative data showed that the items were perfectly aligned with the reality experienced by the participants and that the tasks identified by the instrument were part of their routine. Among the suggestions made by the participants, two were related to changes in the wording of items, which were accepted. Such changes can be seen in **Table 9**, where the first wording of the items and the modifications made are presented.

**Table 8.** Agreement index of the PSES-ASD items of the semantic analysis.

ITEM	UI	NU	KAPPA	ITEM	UI	NU	KAPPA
1	10	0	1*	15	10	0	1*
2	10	0	1*	16	10	0	1*
3	10	0	1*	17	10	0	1*
4	10	0	1*	18	10	0	1*
5	10	0	1*	19	10	0	1*
6	10	0	1*	20	10	0	1*
7	10	0	1*	21	10	0	1*
8	10	0	1*	22	10	0	1*
9	10	0	1*	23	10	0	1*
10	10	0	1*	24	10	0	1*
11	10	0	1*	25	10	0	1*
12	10	0	1*	26	10	0	1*
13	10	0	1*	27	10	0	1*
14	10	0	1*	-	-	-	-

\* Fleiss' Kappa measure with substantial agreement; UI: Understood Item; NU: Not understood Item.

**Table 9.** PSES-ASD previous items and modified items.

Previous item	Modified item
Making and keeping agreements with my son/daughter when he/she needs to do something they don't want to	Making and keeping arrangements with my son/daughter when he/she needs to do something they don't want to
Understand when my son/daughter wants to tell me something, even he/she has difficulties	Understand when my son/daughter wants to communicate, even he/she has difficulties

The feelings raised during the analysis were also checked. Three parents reported feelings of satisfaction while responding because they felt they could handle the tasks listed in the instrument, or at least for making effort to put them into practice, and four parents reported feeling helpless in the face of the items for not being able to perform the activities. Feelings of punishment allied to impotence ( $n = 1$ ), and of adequacy ( $n = 3$ ) also emerged, that is, there is a shock when receiving the diagnosis, but that the process of adaptation to the “new” reality has already occurred.

Thus, the latest version of the PSES-ASD was composed of 27 items, divided into five categories as follows: 1) basic needs and activities of daily living (4 items); 2) socialization (8 items); 3) cognitive development (2 items); 4) structure and discipline (6 items); and, finally, 5) care with treatment/school (7 items). In summary, the results of this study showed that both specialists and parents agreed that the content of the items are relevant and easy to understand,

although some items, such as the modified ones, could be rewritten to become clearer for the public.

#### 4. Discussion

In this study, the results obtained from the analysis of content-based validity evidence, carried out after the construction of the PSES-ASD items, were presented, based on the theoretical assumptions presented by Albert Bandura about the self-efficacy construct, as well as from the contribution of other authors in the definition of “parental self-efficacy”, especially in the context of the ASD. The assessment of self-efficacy as a phenomenon is quite complex and depends on several analysis factors, such as the primary sources of access to information about the construct, the ways in which it manifests itself, the context in which it is being evaluated and the cultural aspects involved in the belief systems (Bandura, 1997; Oettingen, 1995). Thus, an instrument that proposes to assess self-efficacy must respect all these factors during its development, which makes the construction and verification of content validity evidence extremely important for the instrument to fulfill its role.

The PSES-ASD was developed specifically for the context of ASD and targeted to a particular audience, the parents, and caregivers of children with autism. The construction of this instrument began with bibliographical research about its base construct, directed from the macro (the definition and properties of self-efficacy) to the micro (the way parental self-efficacy manifests itself in parents of children with ASD). In this direction, we sought to elaborate items that, while being specific to the context in question, could be generalized to as many situations as possible within the family universe of parents of autistic children (Silva, 2020). Since the beginning of the millennium, few researchers have sought to develop specific parental self-efficacy instruments for the context of the ASD, so that it is not possible to identify psychometric scales validated for practice (May et al., 2015).

In fact, although it is possible to identify some specific instruments used to assess self-efficacy in parents of children with ASD in academic research, such as the Parental Self-Efficacy in the Management of Asperger Syndrome (PSEMAS), developed by Sofronoff and Farbotko (2002), it is necessary to highlight two points: the first is that this scale does not have studies of psychometric evidence, and the second concerns the specificity of the target audience to which it is directed, in the case of parents of children with Asperger Syndrome, a diagnosis that is no longer listed as of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (APA, 2014).

Another more recent instrument that can also be identified is the Parental Self-Efficacy Scale for Preventing Challenging Behaviors in Children with Autism Spectrum Disorder (PASEC), currently under development by Kabashima et al. (2020). Like PSEMAS, PASEC also has as a limitation the focus on a specific domain of care and raising of children with ASD, the presence of challenging



behaviors. However, the use of several niche instruments within the same context can become unfeasible in clinical practice due to the overload of scales and tests to be applied to parents, which can make the assessment dull and reduce the ecological validity of these instruments, that the domains affected by ASD go beyond the behavioral and vary according to the level of support needed (Kur-zrok et al., 2021; Schneider et al., 2020).

In view of that, the PSES-ASD was divided into five assessment domains to more fully reach all areas of parenting that are affected by the diagnosis of ASD in a child in infancy (Constantinidis et al., 2018; Mapelli et al., 2018). Bandura (1997) states that the assessment of self-efficacy must be performed by well-described tasks, as this construct can only be assessed based on the specificities of the tasks in which it is used. Thus, the items for the PSES-ASD were elaborated with simple, direct sentences and accessible vocabulary so that the scale can reach as many parents and caregivers as possible, without the need to explain them during its application.

Finally, in relation to the evidence of content validity of the PSES-ASD, the results showed good agreement both in the analysis of judges, carried out in two rounds, and in the semantic analysis carried out with parents of children with ASD, which indicates that the elaborated items comprised a sample of representative behaviors consistent with the latent trait that was intended to be analyzed with them (Pacico, 2015). In addition to the statistical results presented, it is important to highlight the qualitative observations made during the semantic analysis, since the feelings raised during the reading and evaluation of the scale items directly influence the individuals' perception of effectiveness (Bandura, 1997), which reinforces the importance of assessing parental self-efficacy in a specific context, as this perception can affect not only the performance of parental care tasks, but also the psychological well-being of parents and caregivers (Weiss et al., 2013).

The main limitations faced during this study are the scarcity of studies carried out by the author himself who conceptualized the construct, Albert Bandura, within the domain of parenting, the lack of instruments that seek to assess parental self-efficacy specific to the ASD to be the which made it impossible to create a space for exchange and experiential discussion among the participants.

## 5. Conclusion

This study presented the verification of validity evidence based on the content of the Parenting Self-Efficacy Scale for Autism Spectrum Disorder—PSES-ASD. The results of the evaluation made by both analyses reduced the number of items to 27, which is considered a good number of items for a self-report measure. The remaining items were considered clear, relevant, and fitted the chosen categories thought during the construction process, meaning that the construction and content validity evaluation was successful. Furthermore, the conclusion is that it was possible to elaborate clear items, with theoretical relevance and

properly operationalized for the composition of the instrument.

With the initial development of an instrument to assess parental self-efficacy for ASD, future studies in the area may benefit from its use. Furthermore, the availability of an instrument such as the PSES-ASD can be very useful for psychologists and other professionals who work directly with families of people with ASD. As indicated in the results of practical relevance, it is vital to turn mental health professionals' attention to the mental health of the parents of autistic children. Hence, they will promote a broader work with the entire family system, increasing the chances of a better prognosis for the child and improving life satisfaction for the parents.

Furthermore, other processes are necessary for the validation of a psychometric instrument, such as the search for validity evidence based on the internal structure, the search for validity evidence based on relationships with external variables, precision calculation and standardization of the PSES-ASD. In this way, it will be possible to draw a cutoff score capable of indicating the level, strength, and magnitude of the perception of personal effectiveness of the individuals who will respond to this instrument. It is also desirable, in the future, to carry out a response bias analysis to think about the value load of items through the investigation of response process evidence.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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