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# Development and Validation of the Resilience Scale for Parents of Autistic Individuals

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**Date and time of session:** February 10, 2026; 3.30-3.42 PM

**Room:** Silk Room 3-4

# Presentation Content

- ✓ Introduction
- ✓ Methods
- ✓ Results
- ✓ Summary

# Introduction

# Parents face various challenges while caring for autistic individuals

with a **negative impact** on

- ✓ Physical health,
- ✓ Psychological well-being,
- ✓ Societal reactions,
- ✓ Financial balance (Bekhet et al., 2012; Tathgur & Kang, 2021).

Bekhet, A. K., Johnson, N. L., & Zauszniewski, J. A. (2012). Resilience in family members of persons with autism spectrum disorder: A review of the literature. *Issues in Mental Health Nursing*, 33(10), 650-656. <https://doi.org/10.3109/01612840.2012.671441>

Tathgur, M. K., & Kang, H. K. (2021). Challenges of the caregivers in managing a child with autism spectrum disorder—A qualitative analysis. *Indian Journal of Psychological Medicine*, 43(5), 416-421. <https://doi.org/10.1177/02537176211000769>

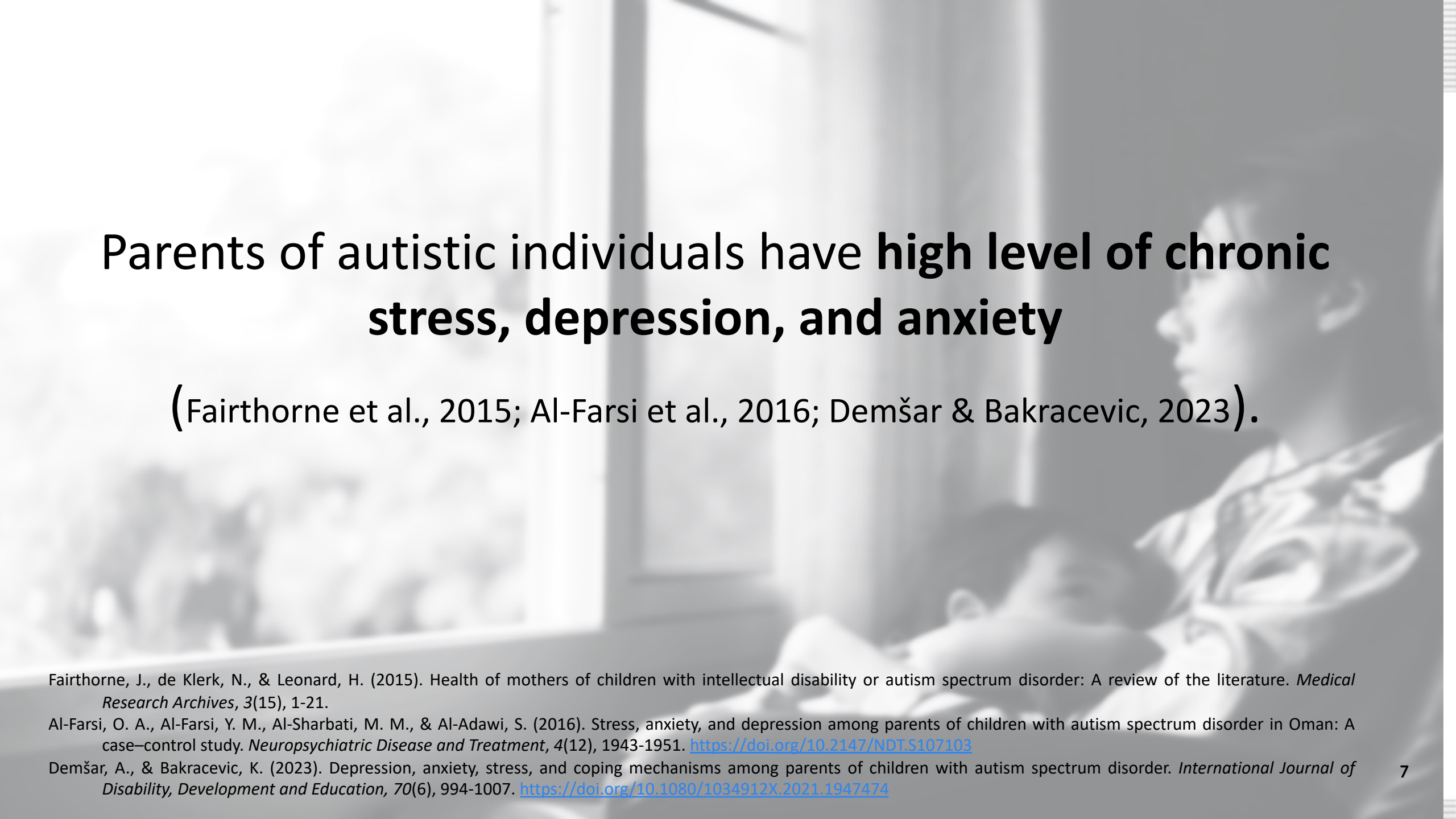
# Parents' psychology is adversely affected by:

- The difficult and long diagnostic process,
- Not having enough information about what to do after the diagnosis,
- Unavailable services for autism,
- The financial burden of the process (Gray, 2002; Daniels et al., 2008; Tathgur & Kang, 2021).

Gray, D. E. (2002). Ten years on: A longitudinal study of families of children with autism. *Journal of Intellectual and Developmental Disability*, 27(3), 215-222.  
<https://doi.org/10.1080/1366825021000008639>

Daniels, J. L., Forssen, U., Hultman, C. M., Cnattingius, S., Savitz, D. A., Feychting, M., & Sparen, P. (2008). Parental psychiatric disorders associated with autism spectrum disorders in the offspring. *Pediatrics*, 5, 1357-1362. <https://doi.org/10.1542/peds.2007-2296>

Tathgur, M. K., & Kang, H. K. (2021). Challenges of the caregivers in managing a child with autism spectrum disorder—A qualitative analysis. *Indian Journal of Psychological Medicine*, 43(5), 416-421. <https://doi.org/10.1177/02537176211000769>



# Parents of autistic individuals have **high level of chronic stress, depression, and anxiety**

(Fairthorne et al., 2015; Al-Farsi et al., 2016; Demšar & Bakracevic, 2023).

Fairthorne, J., de Klerk, N., & Leonard, H. (2015). Health of mothers of children with intellectual disability or autism spectrum disorder: A review of the literature. *Medical Research Archives*, 3(15), 1-21.

Al-Farsi, O. A., Al-Farsi, Y. M., Al-Sharbati, M. M., & Al-Adawi, S. (2016). Stress, anxiety, and depression among parents of children with autism spectrum disorder in Oman: A case-control study. *Neuropsychiatric Disease and Treatment*, 4(12), 1943-1951. <https://doi.org/10.2147/NDT.S107103>

Demšar, A., & Bakracevic, K. (2023). Depression, anxiety, stress, and coping mechanisms among parents of children with autism spectrum disorder. *International Journal of Disability, Development and Education*, 70(6), 994-1007. <https://doi.org/10.1080/1034912X.2021.1947474>



Being resistant to stressful experiences! (Rutter, 1999)

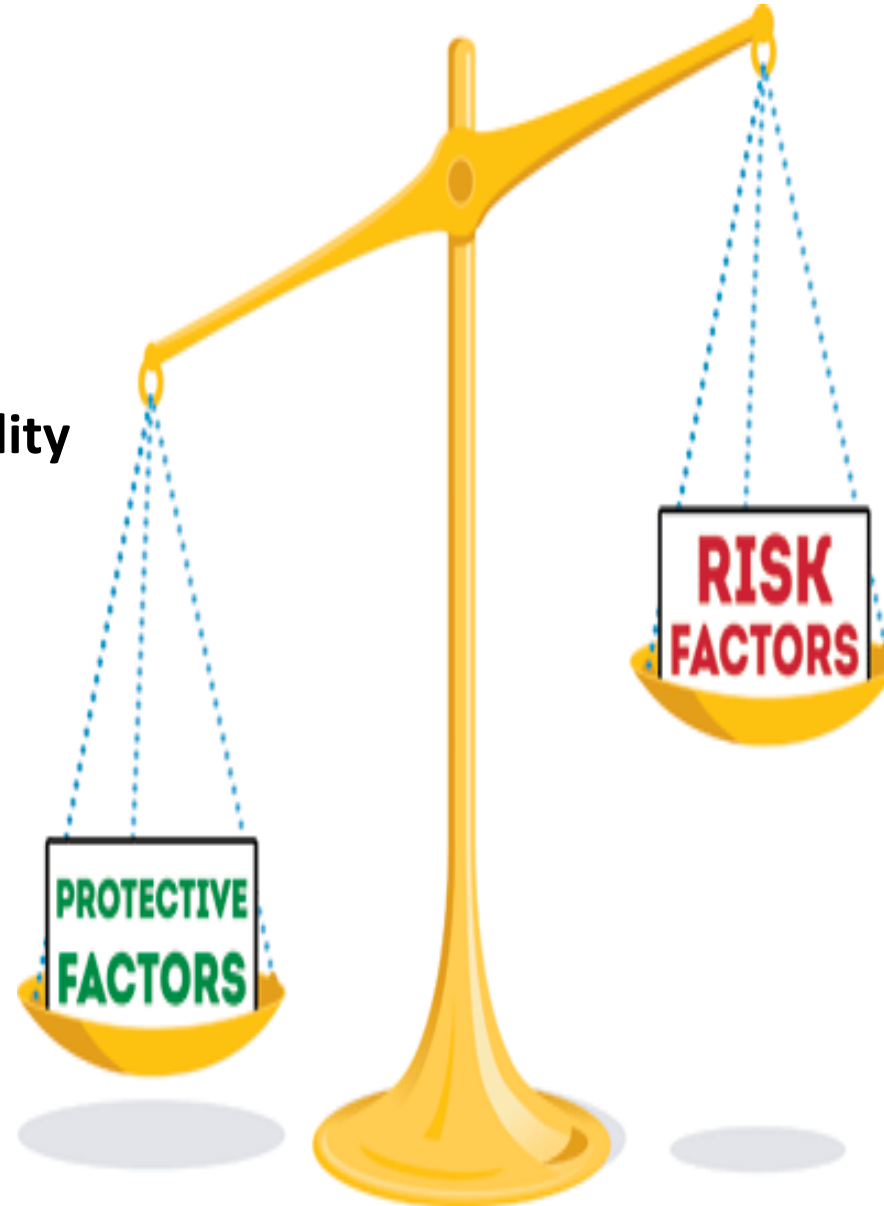
Rutter, M. (1999). Resilience concepts and findings: Implications for family therapy. *Journal of Family Therapy*, 21(2), 119-144. <https://doi.org/10.1111/1467-6427.00108>

# Resilience definition

- “A dynamic process encompassing positive adaptation within the context of significant adversity” (Luthar et al., 2000)

Luthar, S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71(3), 543–562. <https://doi.org/10.1111/1467-8624.00164>

- Parents' well-being
- Parents' self-compassion
- Parents' cognitive flexibility
- Parents' coping skills
- Parents' locus of control
- Social support
- Religious beliefs and spirituality

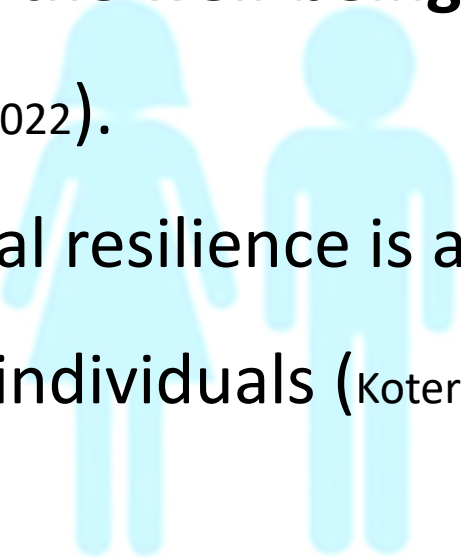


- Severity of autism
- Duration since diagnosis
- Number and age of autistic individuals
- Parent's own psychological and mental state  
*(anger, burnout level, depression level, anxiety about their child's future)*
- Parent's emotional regulation skills
- Parent's financial situation
- Parent's perception of autism
- Family stress
- Marital quality

**Risk factors**

✓ The **development of protective factors** related to resilience **reduces risk factors**, makes it easier to **cope with difficulties**, and **positively affects the well-being** of parents of autistic individuals (Yaacob et al., 2022).

✓ Therefore, the parental resilience is a critical consideration when working with autistic individuals (Kotera et al., 2021).



Yaacob, W. N. W., Yaacob, L. H., Zulkifli, M. M., & Muhamad, R. (2022). A journey towards resilience: coping strategies adopted by parents with children having autism Spectrum disorder in Northeast Malaysia. *International Journal of Environmental Research and Public Health*, 19(4), 2458.  
<https://doi.org/10.3390/ijerph19042458>

Kotera, Y., Pope, M., Chircop, J., Kirkman, A., Bennett-Viliardos, L. A., & Sharaan, S. (2021). Resilience intervention for families of autistic children: Reviewing the literature. *Journal of Concurrent Disorders*.

- ✓ In the literature, **various scales** have been employed in studies investigating the resilience of parents of autistic individuals.
- ✓ These scales **were not originally designed for parents of autistic individuals**, but for somewhat different diagnostic groups.
- ✓ This **lack of specificity** has been underscored by Liu et al. (2022), who emphasized the need for resilience scales to be tailored to the relevant group.

- Moreover, the absence of a clear administration procedure description, detailed scoring procedure, and the need to validate findings in diverse sample groups are **significant limitations of these scales**.
- This underscores their limited applicability to parents of autistic individuals, thereby highlighting the need for more specific and accurate scales.

## Purpose of study

- There is a need for a scale that evaluates the individual resilience of parents of autistic individuals.
- Therefore, we aimed to **develop a scale for individual resilience evaluation in parents of autistic individuals.**

The present study is designed:

- ✓ To develop a comprehensive scale that evaluates the resilience levels of parents of autistic individuals
- ✓ To examine the psychometric properties, validity and reliability of the developed scale.

# Method

- 1) Participants
- 2) Procedures
- 3) Statistical analysis

## ***1) Participants***

This study comprised of three participation groups (**expert, pilot, and study group**).

## ***1) Participants***

### ***a) Expert Group***

Nine experts participated in the study.

Five psychologists

Two occupational therapists

Two physiotherapists

Six academics

Three both academics and clinicians (all of them psychologists)

## ***1) Participants***

### ***b) Pilot Group***

Fifty-two parents (mothers and fathers) of autistic individuals aged 0-18 years old.

## ***1) Participants***

### ***c) Study Group***

556 parents were in the study group.

Two weeks later, we re-rested 139 of the parents to test the reliability of the scale.

## 2) Procedure

A four step process was carried out by following the scale development steps and standardization process developed by Kyriazos and Stalikas (2018).

- ✓ Item generation
- ✓ Item construction
- ✓ Pilot study
- ✓ Field testing

### ***3) Statistical Analysis***

The data were analyzed with SPSS Version 23 and AMOS Version 23 package programs.

The Shapiro–Wilk test was used to evaluate the distribution of the collected data.

### ***3) Statistical Analysis***

Descriptive analysis was used to describe questionnaire results.

Numerical values were represented as mean, standard deviation, minimum and maximum values, and ordinal data were represented as frequencies.



## For validity analysis:

### A) Content validity

Davis technique

### B) Construct validity

Explanatory factor analysis

Confirmatory factor analysis

Table 1. Validity and reliability analysis available in the literature and analysis used in the current study

VALIDITY ANALYSIS	Used in the current study
<b>A. Content Validity</b>	
1. Investigating the content validity of the scale in a logical way	
2. Investigating the content validity of the scale statistically	
2.1. Lawshe's content validity index	
2.2. Davis technique	✓
2.3. Polit-Beck content validity index	
2.4. Cohen Kappa formula	
2.5. Kendall's coefficient of concordance	
<b>B. Criterion Validity</b>	
1. Predictive validity	
2. Concurrent validity	
<b>C. Construct Validity</b>	
1. Factor analysis	
1.1. Exploratory factor analysis	✓
1.1.1. Kaiser (eigenvalue) criterion	✓
1.1.2. Scree plot	✓
1.2. Confirmatory factor analysis	✓
1.2.1. Root mean square error of approximation (RMSEA)	✓
1.2.2. Goodness of fit (GFI)	✓
1.2.3. Adjusted goodness of fit index (AGFI)	✓
1.2.4. Normal fit index (NFI)	✓
1.2.5. Nonnormed fit index (NNFI) [Tucker-Lewis index (TLI)]	✓
1.2.6. Comparative goodness of fit index (CFI)	✓
1.2.7. Incremental fit index (IFI)	✓
1.2.8. Chi square fit test (CMIN/DF)	✓
2. Conjunction-discrimination validity	
3. Known groups comparison	
<b>D. Face Validity</b>	



## For reability analysis:

### A) Norm-Referenced Test

Test-retest reliability

Methods of interval consistency

Split-half method

Cronbach's alpha coefficient

Item-total score analysis

## RELIABILITY ANALYSIS

### A. Norm-Referenced Test

1. Test-retest reliability

✓

2. Parallel-forms method (equivalent-forms method, alternative-form method)

3. Methods of interval consistency

3.1. Split-half method

✓

3.2. Cronbach's alpha coefficient

✓

3.3. Item-total score analysis

✓

3.4. Kuder-Richardson coefficient

3.5. Theta reliability coefficients

3.6. Omega reliability coefficients

3.7. Guttman's reliability coefficients

### B. Criterion-Referenced Reliability Coefficient

# Results

# 1) Characteristics of the study group

356 mothers and 200 fathers with an average age of  $39.46 \pm 6.22$  participated.

**TOTAL: 556 parents**

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**Gender, n (%)**

Female	356 (64)
Male	200 (36)
<b>Mean age, yr.</b>	39.46
<b>(M (SD)</b>	(6.22)
<b>(minimum-maximum))</b>	(23-58)

Parents' educational level were mostly **undergraduate degree.**

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**Education level, n (%)**

Postgraduate	27 (4.8)
Undergraduate	199 (35.8)
Associate degree	45 (8.1)
High school	182 (32.7)
Secondary school	49 (8.8)
Primary school	54 (9.8)

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Most parents were unemployed, and the average monthly income was between the minimum wage and the poverty threshold.

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**Occupation, n (%)**

Employment full time	266 (47.8)
Not employment	290 (52.2)

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**Monthly income, n (%)**

Below the minimum wage	61 (11)
Minimum wage	138 (24.8)
Minimum wage- Poverty threshold	260 (46.8)
Poverty threshold and above	97 (17.4)

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The family structure was mostly nuclear family.

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### Family structure, n (%)

Nuclear family	499 (89.7)
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Extended family	35 (6.3)
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Single-parent family	22 (4)
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## 2) Validity analysis results

## A) Content Validity

### Davis technique

- ✓ We conducted analysis for content validity twice in line with the changes suggested by the experts.
- ✓ In the first analysis, we removed 40 items because they had  $CVI < .80$ .
- ✓ After we saw that some items had the same meaning, we combined these items.

## A) Content Validity

### Davis technique

- ✓ Then we tested the content validity with the final version of the scale including 27 items according to the Davis technique.
- ✓ The total CVI for the scale was calculated as .954. The CVI of the items ranged from .888 to 1.

## Item Analysis

- ✓ We found that the reliability coefficient of the scale was .823 with 27 items.
- ✓ Item 6 was removed from the scale because their distribution characteristics disrupted the structure of the scale.
- ✓ The related analysis showed that the reliability coefficient of the scale increased when item 7, item 17, and item 20 were removed from the scale. Therefore, we removed these items from the scale.
- ✓ Consequently, the reliability coefficient of the scale with remaining 23-items increased from .823 to .831.

## **B) Construct Validity**

- Principal components factor analysis was performed on the data set consisting of 23 items for EFA; the eigenvalues of the factors obtained by the oblique rotation method, the variance explanation percentages and the factor loads of the items collected under the dimensions were examined.

## **B) Construct Validity**

- When factor loads were examined, item 13 was less than .40. Therefore, this item was excluded from the scale.
- Items 22, 23, and 26 were associated with more than one factor (cross loadings), and these items were also excluded from the scale.
- EFA was applied to the 19-item draft scale form again five factors with eigenvalues ranging from 4.233 to 1.061 were obtained, which explained 53.882% of the total variance. Factor loads for all items ranged from .420 to .851 ( $p < .01$ ).

## **B) Construct Validity**

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## Item examples of changed, combined, or removed scale items during the process

The stage in which the item is changed, combined, or removed	Item no in the draft scale	First version of item (in English* and Turkish)	Last version of item (if not removed) (in English* and Turkish)
Expert review	44	I pray to die after my child. (Çocuğumdan sonra ölmek için dua ederim.)	Removed
Pilot study	9	I struggle <b>patiently and tirelessly against</b> the challenges my child experiences. (Çocuğumun yaşadığı <b>güçlükler karşısında</b> yılmadan, sabırla mücadele ederim.)	I struggle with the challenges my child experiences <b>with patience and without giving up.</b> (Çocuğumun yaşadığı <b>güçlüklerle</b> yılmadan, sabırla mücadele ederim.)

## Item examples of changed, combined, or removed scale items during the process

The stage in which the item is changed, combined, or removed	Item no in the draft scale	First version of item (in English* and Turkish)	Last version of item (if not removed) (in English* and Turkish)
Item analysis	20	I feel relieved when I communicate with families who have similar stories. ( <i>Bizimle benzer hikayelere sahip ailelerle konuşunca rahatlarım.</i> )	Removed
Construct validity	22	I have sufficient financial means to overcome difficult times. ( <i>Zor zamanların üstesinden gelmek için yeterli maddi duruma sahibim.</i> )	Removed

- To confirm the factor structure of the scale after EFA, CFA was performed.
- For CFA, we randomly divided the data set including responses from 556 participants into two.
- Modifications were made to the model to improve the fit indices calculated by CFA.

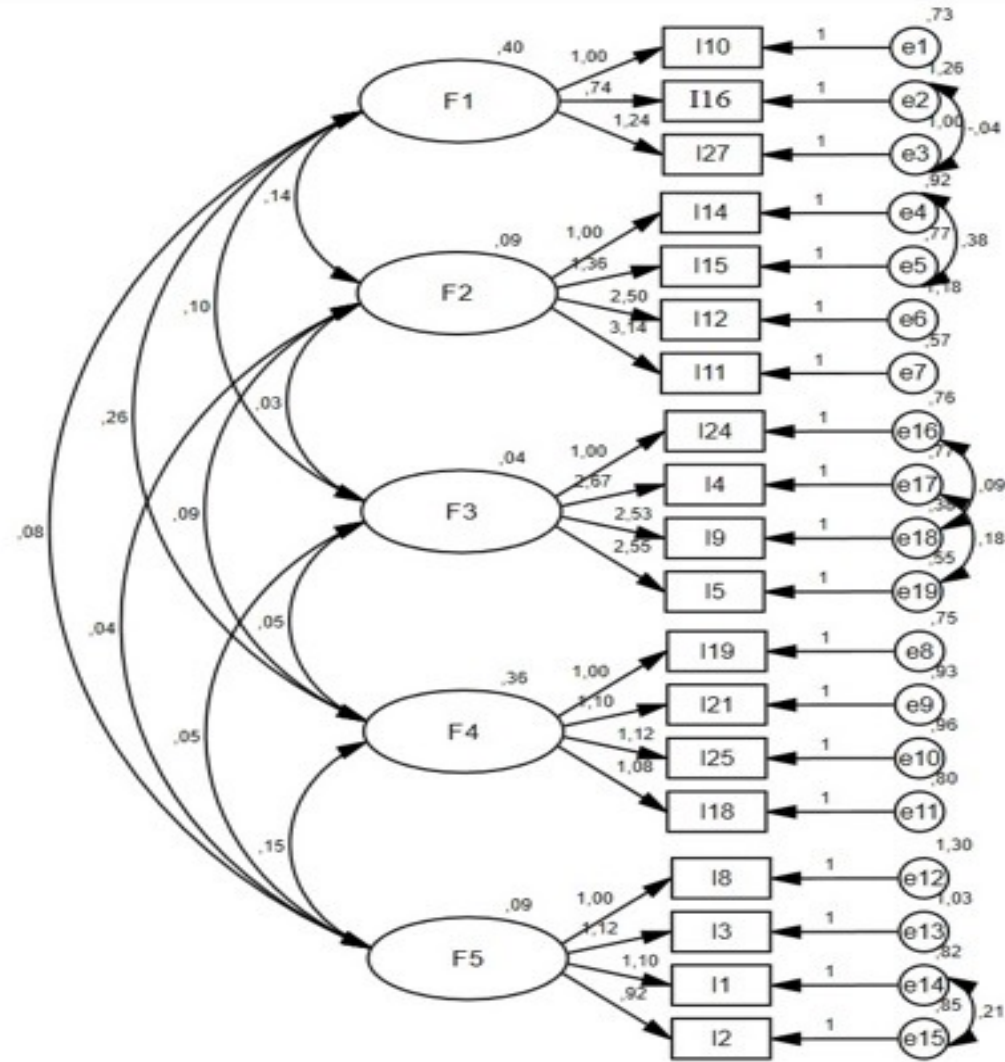
**CFA showed that the model created in EFA showed a satisfactory fit to our data.**

Criterion	Perfect fit	Acceptable fit	Pre- modification finding	Post- modification finding	Result according to post-modification finding
RMSEA	$0 \leq \text{RMSEA} \leq .05$	$.05 < \text{RMSEA} \leq .08$	.055	.033	Perfect fit
SRMR	$0 \leq \text{SRMR} \leq .05$	$.05 < \text{SRMR} \leq .10$	.062	.055	Acceptable fit
GFI	$.95 \leq \text{GFI} \leq 1$	$.90 \leq \text{GFI} < .95$	.908	.937	Acceptable fit
AGFI	$.90 \leq \text{AGFI} \leq 1$	$.85 \leq \text{AGFI} < .90$	.876	.913	Perfect fit
NNFI (TLI)	$.95 \leq \text{NNFI} \leq 1$	$.90 \leq \text{NNFI} < .95$	.836	.943	Acceptable fit
CFI	$.95 \leq \text{CFI} \leq 1$	$.90 \leq \text{CFI} < .95$	.865	.954	Perfect fit
NFI	$.95 \leq \text{NFI} \leq 1$	$.90 \leq \text{NFI} < .95$	.752	.830	-
IFI	$.95 \leq \text{IFI} \leq 1$	$.90 \leq \text{IFI} < .95$	.869	.956	Perfect fit
CMIN/DF	$0 \leq \text{CMIN/DF} \leq 2$	$2 < \text{CMIN/DF} \leq 3$	1.839	1.293	Perfect fit

The scale consisted of 5 sub-dimensions was confirmed in the scree plot.

Sub-dimensions of the scale with five factors were

- (1) Parental perception of autism,
- (2) Future anxiety,
- (3) Psychological functioning,
- (4) Social support,
- (5) Family functioning.



**Figure 1.** Path diagram

**Note.** I=Abbreviation of “item”; F1=Parental perception of autism (*Otizm spektrum bozukluđuna ilişkin ebeveynin algısı*) sub-dimension; F2=Future anxiety (*gelecek kaygısı*) sub-dimension; F3=Psychological functioning (*psikolojik işlev*) sub-dimension; F4=Social support (*sosyal destek*) sub-dimension; F5=Family functioning (*aile işlevselliđi*) sub-dimension

## 2) Reliability analysis results

- The Cronbach's  $\alpha$  value for the 19-item scale was calculated as .797.
- The item-total correlation for each item was found to be over .30.
- When the inter-item correlation between the scale items was examined, the minimum correlation coefficient was -.093; the maximum correlation coefficient was determined as .571.

When the internal consistency coefficients are calculated for each sub-dimension;

$\alpha=.587$  for the parental perception of autism sub-dimension;

$\alpha=.671$  for the future anxiety sub-dimension;

$\alpha=.623$  for the psychological functioning sub-dimension;

$\alpha=.653$  for the social support sub-dimension,

$\alpha=.479$  for the family functioning sub-dimension.

- According to the **test-retest analysis** performed after applying the scale to 139 parents for the second time, **the Pearson correlation coefficient and ICC for each sub-dimension and scale total were found to be above .90.**
- **The Cronbach's  $\alpha$  value** of the first half for the scale items was divided into two as the first 10 items and the last 9 items.
- Cronbach's  $\alpha$  value for the first 10 items was .817; whereas, for the 9 items was calculated as .827.
- The correlation coefficient between the two halves was found to be .803.

We re-numbered the scale items which gathered under 5 sub-dimensions and created the final version of the Resilience Scale for Parents of Autistic Individuals (RSP-A).

- **Items 1-3** were under the **parental perception of autism** sub-dimension,
- **Items 4-7** were under the **future anxiety** sub-dimension,
- **Items 8-11** were under the **psychological functioning** sub-dimension,
- **Items 12-15** were under the **social support** sub-dimension,
- **Items 16-19** were under the **family functioning** sub-dimension.

## Scoring of RSP-A

- According to the five-point Likert rating, the lowest raw score to be taken from the scale is 19, and the highest raw score is 95.
- Ten items on the scale (1, 2, 3, 4, 5, 6, 7, 14, 15, and 17) are **reverse scored**.
- It takes approximately 3 min to respond to the whole scale.
- **A high score obtained from the scale indicates a high level of resilience.**

## Summary

- RSP-A is a valid and reliable scale for measuring the resilience of parents of autistic individuals.



# Development and Validation of the Resilience Scale for Parents of Autistic Individuals

## **Thank You!**

Sinem KARS & Meral HURI

**For more questions mail to:**

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