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## Investigating resilience, perceived social support and trait anxiety levels of mothers of school-age children who stutter

## Keywords

Stuttering  
Anxiety  
Childhood-onset Fluency Disorder  
Psychological Resilience  
Social Support

## ABSTRACT

**Purpose:** The attitude of mothers of children who stutter is believed to be crucial in the management of therapy process. Therefore, this study aimed at the description of resilience, perceived social support and trait anxiety levels of mothers of children with stuttering, as well as at the exploration of the relationship between them. **Methods:** The study sample consisted of 33 mothers of children with stuttering aged 6-12 years. The data were gathered using the following instruments: Mother Resilience Scale, Revised Parental Social Support Scale, State-trait Anxiety Inventory, Stuttering Severity Instrument-4, and a personal information form. **Results:** Resilience of mothers of children who stutter was high, whereas perceived social support and trait anxiety levels of the participants were lower. Mother's increased level of perceived social support resulted in increased resilience level and decreased trait anxiety level. The trait anxiety levels of mothers with a college degree were significantly lower than those of mothers with other education levels. No statistically significant correlation was observed between stuttering severity and the levels of resilience, perceived social support and trait anxiety. **Conclusion:** Although mothers of stuttering children present the required skills to cope with the situation, it is believed that they need more social support. Consequently, offering professional support to mothers in the course of stuttering management and referring them to appropriate intervention programs are emphasized.

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## INTRODUCTION

Stuttering is defined as a speech disorder that affects and disrupts speech fluency<sup>(1)</sup>. In literature, recent studies define stuttering as a neurodevelopmental disorder that encompasses motor planning and production, linguistic and emotional aspects<sup>(2)</sup>. Furthermore, stuttering is reported to have impacts not only on people who stutter (PWS), but also on parental members<sup>(3)</sup>. As stuttering becomes chronic, it has been reported that parents slow down their speech rates, use shorter-length utterance, and interrupt their children's speech<sup>(3-5)</sup>. These speech and communication patterns are manifested in the emotional and behavioral reactions of parental members as well as of children<sup>(6-9)</sup>. In the context of emotional reactions, it has been reported that having children who stutter (CWS evokes negative emotions that include anger, sadness, anxiety, frustration, and self-accusation of parents<sup>(7,10-13)</sup>. Moreover, it has been indicated that parents are anxious about the likelihood that stuttering will negatively affect their children's future lives, social relationships and self-confidence<sup>(7,9,11,14)</sup>.

### Studies on resilience, social support and trait anxiety levels

Resilience is defined as a dynamic process involving the ability of individuals to adjust and cope with even the most overwhelming experiences<sup>(15)</sup>. As described in the risk-and-protective-factor model, when there is a negative situation that affects a child's life, a positive and supportive interaction between parents and the child fosters academic success and peer interaction, resulting in a less anxious profile of the child. Negative situations, called risk factors, have been reported to enhance sensitivity and anxiety towards situations. Positive situations, called protective factors, which include supportive parent-child interaction, social support, etc. keep parents away from negative factors<sup>(16)</sup>. School age CWS exhibit more behavior problems and less attachment to family than children who do not stutter (CWNS). As a result, a strong attachment to family will contribute to the resilience of CWS and parent-child interaction<sup>(8)</sup>.

Social support is one of the protective factors that enhances family resilience and provides emotional support<sup>(16)</sup>. Parents have expressed that they receive more support from close family members and friends and look forward to lacking professional support. Professionals who initially assess CWS need to be well-informed about the disorder so that they can refer parents to speech-language pathologists for early intervention<sup>(9)</sup>.

Studies addressing resilience and social support levels focus more on PWS than on parents<sup>(15,17,18)</sup>. Craig et al.<sup>(15)</sup> reported that factors contributing to resilience were self-efficacy, social support and healthy social functioning. They also mentioned that social support is beneficial because it augments a sense of belonging and well-being. However, the social support levels of participants are smaller than those of controls<sup>(17)</sup>, and the social support provided by family members significantly affects the quality of life of PWS<sup>(18)</sup>. Consequently, the importance of the role played by the family in the therapy process and in enhancing communication with children about stuttering in order

to increase the social support presented by family members is highlighted<sup>(18)</sup>.

Parents of CWS hold greater situational and trait anxiety levels than those of CWNS<sup>(10,13)</sup>. The Spielberger's Self-assessment Questionnaire and the State-trait Anxiety Inventory (STAI) were utilized in the studies by Zenner et al.<sup>(13)</sup> and Abalı et al.<sup>(10)</sup>, respectively. A study conducted by Millard et al. utilized the Palin Parent Rating Scale, which was specifically prepared for stuttering, and assessed the familial perspective. Their findings showed that parents are anxious about stuttering<sup>(14)</sup>. Profiling parent anxiety levels is significant due to the following reasons: first, the anxiety levels of parents may refer to a psychopathology *per se* and this should be managed<sup>(10)</sup>; second, the parents' anxiety can be conveyed to their children, and this situation may have a negative impact on the long-term reaction the children towards stuttering<sup>(14)</sup>. In addition, the role of parents is a key factor in modeling resilient responses to children and creating a resilience-rich environment. Some CWS may benefit from targeted support and build their own resilience to overcome the challenges about stuttering<sup>(19)</sup>.

Previous studies, along with clinical observations, have shown that there is a lack of research addressing the psychosocial impact of stuttering on Turkish-speaking parents. Therefore, this study aimed to investigate the resilience, perceived social support and trait anxiety levels of parents with school-age children who stutter and explore whether there is a correlation between these variables.

## METHODS

### Study sample

Participants of this study were recruited from referrals to the Speech-language Pathology Clinic at the Ondokuz Mayıs University Hospital with complaints of stuttering. Diagnosis was based on a detailed clinical interview and application of the Turkish version of the Stuttering Severity Instrument-4 (SSI-4) at the initial session<sup>(20,21)</sup>. The SSI-4 scores of all participants were  $\geq 9$ , which was the diagnostic criteria for stuttering indicated by Franken et al.<sup>(22)</sup>. The study sample comprised 30 (10 girls and 20 boys) Turkish-speaking, monolingual CWS aged 6-12 years (Mean=9.42 years; SD=2.44) and their mothers, aged 30-44 years (Mean=35.47; SD=5.25). Power analysis was used to determine the number of participants of the study. As a result, sample size was determined to be 30 children and their mothers, with the 95% reliability and 90% power. All individuals were native speakers of Turkish and had no history of neurological, psychiatric or hearing disorders. None of the participants had undergone therapy for stuttering or any other speech/language or learning problem. All study participants signed an Informed Consent Form (ICF) prior to study commencement. The study was approved by the Research Ethics Committee of Ondokuz Mayıs University Hospital under protocol no. 2017/13.

## Instruments

The **Mother Resilience Scale (MRS)** is a 34-item, 5-point Likert type rating scale developed by Kaner and Bayraklı<sup>(23)</sup> where a high score refers to a high level of resilience among mothers. Using exploratory factor analysis, it was determined that the scale is composed of eight factor structures (subscales), namely, Optimism, Challenge, Self-efficacy, Social Support, Motivation for an Aim/Achievement, Seeking Novelty, Predicting Risks, and Social Competence. Construct validity was assessed by confirmatory factor analysis, and goodness-of-fit indices were satisfactory. Correlations between the MRS scores and Beck Depression Inventory, Self-control Schedule and Parental Self-efficacy Scale were -0.36, 0.58 and 0.50 ( $p < 0.01$ ), respectively. Cronbach alpha and split-half reliability coefficients of the scale were between 0.54-0.91 and 0.53-0.87, respectively. Test-retest reliability values differ between 0.33 and 0.80.

The **Revised Parental Social Support Scale (RPSSS)** is a 28-item, 4-point Likert type rating scale developed and upgraded by Kaner and Bayraklı<sup>(24)</sup>. It assesses the current level of social support and the satisfaction perceived from this support. A high score refers to a high level of perceived social support among parents. Using exploratory factor analysis, it was determined that the scale consists of four factor structures (subscales), namely, Social Companionship Support, Information Support, Emotional Support, and Caring Support. Construct validity of the RPSSS was assessed by confirmatory factor analysis. Cronbach alpha internal consistency coefficients were between 0.83 and 0.95, whereas Spearman-Brown split-half reliability coefficients differ between 0.86 and 0.92<sup>(24)</sup>.

The **State-trait Anxiety Inventory (STAI)** is a 20 item, 4-point likert type rating scale which was developed by Spielberger et al.<sup>(25)</sup> and adapted to Turkish population by Öner and Le Compte<sup>(26)</sup>. Trait anxiety refers to the anxiety level of the individual on a “general” basis. Reliability coefficients derived from Alpha correlations are between 0.83 and 0.87; item reliability correlations are between 0.34 and 0.72; test-retest reliability coefficients differ between 0.71 and 0.86. It is reported that Trait Anxiety Scale has a high item homogeneity and internal consistency<sup>(26)</sup>.

The **Stuttering Severity Instrument-4 (SSI-4)** was developed by Riley<sup>(20)</sup> and adapted to Turkish by Mutlu<sup>(21)</sup>. The Cronbach alpha coefficient of the instrument was found to be 0.94. The test-retest and interjudge reliability measures and the inner consistency coefficients showed that the instrument

presents high reliability. The SSI-4 assesses the development and severity of dysfluent structures, especially (a) stuttering frequency, (b) stuttering duration, (c) any concomitant behaviors and spontaneity of the individual’s speech<sup>(21)</sup>.

A **Personal Information Form** was developed by the authors and used to collect demographic information from the mothers.

## Procedure

Stuttering severity of the participants was assessed by the first author of the study, who is a speech-language pathologist. All measures were taken prior to the assessment session. An ICF clearly describing the aims of the study was signed by the mothers. The first author of the study provided answers to questions raised by the participants regarding the study and/or measures. It took approximately 30 min to complete all the scales.

Data were analyzed using descriptive statistics. Due to small sample size and non-normal distribution of the data, non-parametric tests were applied. Pearson correlation analysis was used in order to explore whether there was correlation between the levels of resilience, perceived social support and trait anxiety of mothers. The Mann-Whitney U and Kruskal-Wallis tests were utilized with the aim of detecting any statistically significant differences regarding the gender and education variables, respectively. Moreover, Path analysis was conducted to determine whether the resilience and perceived social support levels of the mothers along with the stuttering severity of their children have a predictive impact on the trait anxiety levels of the first. The data were processed using the SPSS 21 and AMOS 22 software. A significance level of 5% ( $p < 0.05$ ) was adopted for all statistical analyses.

## RESULTS

### Descriptive statistics results

Table 1 shows the mean number and standard deviation scores and the Pearson correlation coefficient values between the variables obtained with application of the Mother Resilience Scale (MRS), Revised Parental Social Support Scale (RPSSS), State-trait Anxiety Inventory (STAI), and Stuttering Severity Instrument-4 (SSI-4).

By subtracting and adding one standard deviation from the midpoint of the score to be obtained from the scales, low, middle and high interval range could be determined. In this direction, high levels of resilience along with middle levels of

**Table 1.** Descriptive analysis results and correlation values between stuttering severity of children and the levels of resilience, perceived social support and trait anxiety of mothers

	Resilience	Social support	Trait anxiety	Stuttering severity
Social support	0.478*	-	-	-
Trait anxiety	-0.492*	-0.566*	-	-
Stuttering severity	-0.167	0.028	-0.221	-
<b>Mean</b>	133.50	67.60	46.77	20.70
<b>SD</b>	17.396	14.843	5.853	4.865

\* $p < 0.001$

**Caption:** SD=standard deviation

social support and trait anxiety among mothers were observed. Moderate positive relationship was found between the levels of resilience and perceived social support ( $r=0.478$ ;  $p<0.001$ ), whereas moderate negative relationship was observed between the levels of resilience and trait anxiety ( $r=-0.492$ ;  $p<0.001$ ) of mothers. Moreover, moderate negative relationship was observed between perceived social support and trait anxiety levels ( $r=-0.566$ ;  $p<0.001$ ). However, no statistically significant correlation was verified between stuttering severity of children and levels of resilience, perceived social support and trait anxiety of mothers ( $p>0.05$ ).

### Path analysis results

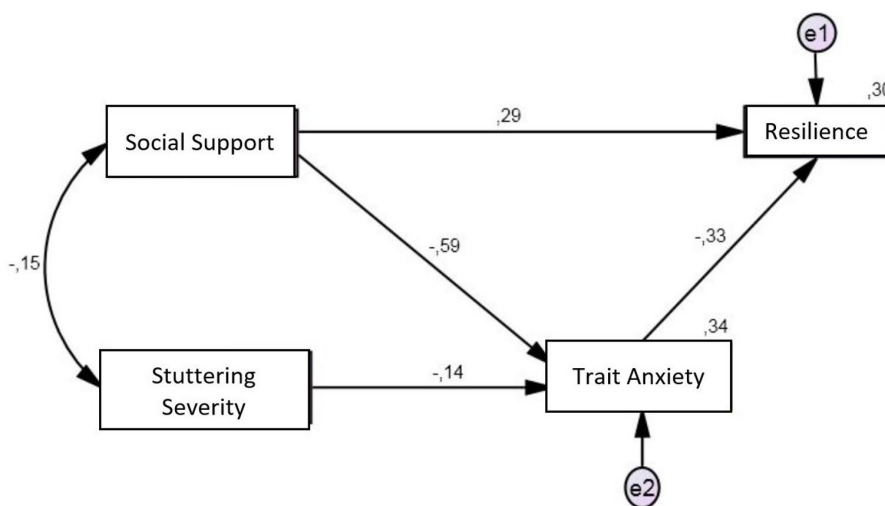
Compared to regression analysis, structural equation presents a more systematic and comprehensive way of modeling the relationships between many dependent and independent variables within a complex research problem. The direct and indirect effects of the variables are calculated, and model fit indices are assessed by Path analysis. Figure 1 illustrates the standardized coefficients of the paths in the model.

Findings from the Path analysis showed that the perceived social support level affects the trait anxiety and resilience levels of the mothers. Moreover, the perceived social support and trait anxiety levels have an impact on the resilience of mothers. The standardized indirect effect of perceived social support on resilience was 0.19. The cumulative impact of perceived social support on resilience was 0.48. The standardized indirect

impact of stuttering severity on the resilience of mothers was 0.04. Furthermore, the results indicate that 34% of the variance in the trait anxiety level of mothers can be explained by their perceived social support level and the stuttering severity of children, whereas 30% of the variance in the resilience of mothers can be explained by all these variables. Figure 1 shows the goodness-of-fit indices of the model ( $\chi^2/df=0.104$ ,  $p=0.747$ ,  $RMSEA=0.000$ ;  $GFI=0.998$ ;  $AGFI=0.982$ ;  $NFI=0.996$ ;  $CFI=0.999$ ).

### Non-parametric test results

Results from the Mann-Whitney U test indicated that the levels of resilience, perceived social support and trait anxiety of mothers did not significantly differ according to their children's gender ( $p>0.05$ ) (Table 2). Moreover, Kruskal-Wallis test results demonstrated that the levels of resilience and perceived social support among mothers did not significantly differ according to their educational level ( $p>0.05$ ). However, results of the same test revealed that trait anxiety levels of mothers statistically differed according to their educational levels ( $\chi^2/df=11.775$ ;  $p<0.01$ ) (Table 3). Subsequently, the Bonferroni post-hoc test was applied to compare differences across education groups, and the results indicated that the trait anxiety levels of mothers with college degrees were significantly lower than those of mothers with others education levels (5, 8 and 12 years of education, respectively).



**Figure 1.** Results of the Path analysis for the relationship between stuttering severity of children and the levels of resilience, perceived social support and trait anxiety of mothers

**Table 2.** Results of the levels of resilience, perceived social support and trait anxiety of mothers according to their children's gender

Variables	Gender	n	Mean rank	Sum of ranks	U	p
<b>Resilience</b>	Female	10	16.95	169.50	85.50	0.523
	Male	20	14.78	295.50		
<b>Social support</b>	Female	10	17.75	177.50	77.50	0.322
	Male	20	14.38	287.50		
<b>Trait anxiety</b>	Female	10	16.50	165.00	90.00	0.659
	Male	20	15.00	300.00		



**Table 3.** Results of the levels of resilience, perceived social support and trait anxiety of mothers according to their educational level

Variables	Education	N	Mean Rank	SD	$\chi^2$	p
<b>Resilience</b>	Elementary School	10	13.25	3	2.203	0.531
	Middle School	3	14.50			
	High School	13	15.81			
	University	4	20.88			
<b>Social support</b>	Elementary School	10	14.30	3	4.494	0.213
	Middle School	3	9.50			
	High School	13	15.50			
	University	4	23.00			
<b>Trait anxiety</b>	Elementary School	10	14.55	3	11.775	0.008*
	Middle School	3	23.00			
	High School	13	18.35			
	University	4	3.00			

\*p&lt;0.01

## DISCUSSION

Results of the present study showed that the resilience levels of mothers are high. The specific literature has reported that attachment between children and parental members positively contribute to the resilience of children and their relationship with the family<sup>(8)</sup>. It is also assumed that the supportive nature of this interaction would positively contribute to the resilience level of family members<sup>(7)</sup>. In this regard, findings of the current study regarding the resilience levels of mothers corroborate the literature. Furthermore, the perceived social support levels among mothers were found to be moderate. Previous studies have reported that variables such as self-efficacy, social support and healthy social functioning contribute to the resilience of stuttering adults<sup>(15)</sup> and that social support positively affects their sense of belonging and well-being<sup>(18)</sup>. Moreover, a study conducted using a qualitative methodology reported that families expected support from professionals, as their knowledge is limited<sup>(9)</sup>. This lack of knowledge about stuttering is also articulated by the past experiences of stuttering adults along with the fact that they searched for a role-model<sup>(27)</sup>. As far as the findings of the study are concerned, parents need to be well-informed about the nature of stuttering and receive the required professional support in order to be a role-model for their children. Both of these studies used qualitative methodologies<sup>(9,27)</sup>. Therefore, further studies utilizing this type of methodology are needed so that resilience and social support can be investigated on this basis.

Another finding of the present study showed positive correlation between the resilience and perceived social support levels among mothers. The Path analysis results validated this finding in that the perceived social support levels significantly influenced the resilience levels of mothers. Within the risk-and-protective-factor model, parent interaction and social support are among the protective factors<sup>(16)</sup>. As supported by the findings of this study, it is believed that the social support received by parents will provide them with the necessary sources to cope with stuttering and, indirectly, raise their resilience levels<sup>(9)</sup>.

It has also been found that trait anxiety levels of mothers were moderate. To the extent of our knowledge, two studies have

investigated the anxiety levels of parents<sup>(10,13)</sup>. Abalı et al.<sup>(10)</sup> found out that scores obtained using the State-trait Anxiety Inventory (STAI) were significantly higher among parents with CWS than in participants of the control groups. Negative, moderate correlation was observed between the resilience and trait anxiety levels in the present study. Path analysis results also confirmed that the trait anxiety levels of mothers had a predictive impact on their resilience. In other words, a higher trait anxiety level resulted in a lower resilience level. The emotional reactions of parents involved feelings of anxiety associated with the stuttering of their children and their future lives<sup>(11,13)</sup>. Previous research has also reported that children were less anxious on the condition that a healthy parent-child interaction existed<sup>(16)</sup>.

Statistically significant negative correlation was verified between the perceived social support and trait anxiety levels. Path analysis results also showed that perceived social support levels had a predictive effect on trait anxiety levels. The findings by Plexico and Burrus<sup>(9)</sup> showed that adults who stutter receive less social support than those in the control group. They also demonstrated that these individuals obtained higher scores in the Anxiety section of the Symptom Checklist-Revised measure (SCL-90-R)<sup>(17)</sup>. According to the recommendations provided in Plexico and Burrus<sup>(9)</sup>, extending the social support network of parents and their participation in support groups should be ensured. They anticipated that stuttering could be a source of anxiety for both children and parents, and that limited social support could increase this anxiety.

Regarding the education effect, it was found that the resilience and perceived social support levels do not significantly differ according to the education level of the mothers. However, the trait anxiety levels of mothers with a college degree were significantly lower than those of mothers with other education levels. To the best of the authors' knowledge, there are no studies addressing the effect of education on the trait anxiety levels of mothers of CWS. Nevertheless, this finding can be interpreted as a more moderate approach towards stuttering adopted by mothers with a higher education level.

No statistically significant correlation was observed between stuttering severity of children and the levels of resilience,

perceived social support and trait anxiety of mothers. These findings suggest that stuttering severity is less significant than its persistence.

Finally, a limitation to this study lies on its small sample size: 30 mothers of school-age CWS. Implementation of the used scales to a wider population would assist with obtaining more concrete results. Prospective studies also need to compare the results obtained with those from controls. Moreover, a recent study reported the need to utilize scales measuring anxiety levels that are specific to stuttering<sup>(28)</sup>. It is also recommended that a qualitative methodology be used in future studies in order to explore the resilience, perceived social support and anxiety levels of mothers. It is anticipated that the use of this methodology would complement the findings from this study.

## CONCLUSION

Findings of the present study show that mothers with children who stutter (CWS) present skills to cope with this condition, but need more social support than they receive. Their increased level of perceived social support resulted in increased resilience level and decreased trait anxiety level. The trait anxiety levels of mothers with a college degree were significantly lower than those of mothers with other education levels.

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## Author contributions

OY: Study design, data collection, literature review, writing of the manuscript, and contribution to data analysis. MVB: Data analysis and contribution to the writing of the manuscript; SO: Literature review and writing of the manuscript.