

Original Article

The Relationship Between the Communication Attitudes of Preschool Children Who Stutter and Their Parents' Cognitive, Emotional, and Behavioral Responses

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Aynur Senocak¹,
Seçil Aydın Oral¹

¹Department of Speech and
Language Therapy, Uskudar
University, Istanbul, Turkey

Purpose The aim of this study is to evaluate the link between parents' reactions to the stuttering of their children and the communication attitudes of the latter regarding their speech problem.

Methods The study used a correlational quantitative research design involving 40 children who stutter (between the ages of 36–71 months), along with their mothers and fathers. Data was gathered using the KiddyCAT-TR (children's communication attitudes) and the RSDS (parents' reactions on cognitive, behavioral, and emotional subscales).

Results Mothers reported having higher levels of reactions, scores on all subscales, and higher severity perception of their children's stuttering compared to fathers ($p < .01$). Positive correlation coefficients were observed between the children's negative communication attitudes and total reactions of their mothers ($r = .493$, $p = .001$) and fathers ($r = .465$, $p = .003$). It was found that mothers tend to react cognitively–emotionally while fathers reacted behaviorally–emotionally.

Conclusions Mothers exhibited higher intensity and severity perception compared to fathers. An inverse link was found between the children's negative communication attitudes and parental reactions, especially on the emotional subscale. The finding emphasizes the importance of stuttering as a family affair and calls for family assessment and intervention.

Keywords Stuttering, Parental responses, Communication attitude, Stuttering severity, Preschool

INTRODUCTION

Stuttering is a fluency disorder of neurodevelopment with interruptions in speech fluency, such as repetitions, blocks, and prolongations, alongside secondary behaviors and attitudes [1]. The occurrence of interruptions in one's speech might result from multiple individual and external factors; hence, stuttering is one of the speech disorders that adversely impacts human life due to alterations in speech flow [1,2]. The onset of stuttering normally happens during the preschool age, where there is rapid language development, ranging between ages 2 and 5 [3,4].

The Multifactorial Dynamic Pathways Theory (MDPT), suggested by Smith and Weber, is among the theories utilized to explain stuttering onset [5]. The theory states that stuttering develops through nonlinear and dynamic interactions of motor, linguistic, and emotional factors, emphasizing that the linguistic and emotional factors are determinants of stuttering onset. Therefore, stuttering onset and the course of persistence or recovery happens at a crucial period of neurodevelopment during early childhood, where motor, linguistic, and emotional systems develop rapidly and concurrently. Within this framework, environmental responses particularly parents' cognitive,

Corresponding to Seçil Aydın Oral

Department of Speech and Language Therapy, Uskudar University, Saray Mah. Ahmet Tevfik İleri St. No:5
Ümraniye, Istanbul, Turkey

TEL. +90-216-4002222, **FAX.** +90-216-4741256, **E-mail.** secil.aydinoral@uskudar.edu.tr

emotional, and behavioral reactions to stuttering should be considered among the key environmental factors influencing the course of stuttering and the child's communication attitude.

Stuttering can affect not only speech fluency but also the behavioral, emotional, social, and cognitive development of the stuttering child [6-8], and children who stutter are at risk for negative effects on communication [9]. Contemporary clinical and empirical perspectives indicate that management of the psychosocial features of stuttering is fundamental for effective treatment [10]. Children who stutter experience higher behavioral, emotional, and social difficulties than their peers from the age of three. The feeling of failure experienced during the conversation can lead to behaviors such as avoiding social environments and introversion over time. These emotional states can lead to problems in friendships, decreased school attendance, restricted social interactions, and a lack of self-confidence [11]. In this context, children who stutter may face social difficulties, including peer rejection, bullying, and social isolation [12]. At the same time, numerous research findings suggest that stuttering affects not only the child but also the family, revealing significant emotional and social effects on parents, siblings, and the whole family [7,13-17].

The first people to witness the onset of stuttering in children are mostly parents; children usually spend a lot of time with their parents during this period, which may lead parents to develop feelings and thoughts about stuttering over time [18]. Parents of children who stutter often feel sad, anxious, and guilty about their children's stuttering, leaving them unsure how to behave [19,20]. As a result of this indecision, many parents state that, due to discomfort with stuttering, they prefer to cope with the situation either by avoiding it completely or only through indirect contact [21]. Research has further demonstrated that parents of children who stutter are often uncertain, hesitant, and uncomfortable to communicate openly with their child and others on the topic of stuttering [14].

Naturally, these internal processes of emotion, thought, and indecision lead parents to react to their children's stuttering [20,22]. These reactions are classified in cognitive, emotional, and behavioral dimensions [22]. Cognitive reactions include reactions such as not knowing the cause of the child's stuttering, growing up in their minds during speech, hoping that their child's stuttering will pass. Emotional reactions include anger, tension, guilt, anxiety, and shame [19], and behavioral reactions include positive reactions such as patiently waiting and listening during the child's speech and negative reactions such as deep breathing, asking the child to slow down while talking, completing the child's speech, excessive eye contact, and changing the parent's own speech [22,23].

Parents' cognitive reactions to stuttering, such as uncertainty about its cause or mentally magnifying its severity, along with emotional reactions including anxiety, guilt, and anger, and behavioral reactions such as completing the child's sentences, asking the child to slow down, or maintaining excessive eye contact, operate within a mutually reinforcing dynamic process that directly affects the child's speech experience. It is well established that these reactions, taken together, may shape the child's communication attitude toward his or her own speech, and that negative parental reactions may create a context in which the child comes to perceive speaking as a threatening or unsuccessful experience [22,23]. In this regard, the relationship between parental reactions and the child's communication attitude is considered to operate in a reciprocal and cyclical manner.

Maternal and paternal differences in reactions to stuttering have been documented, particularly at the level of emotional responding. Humeniuk and Tarkowski [24] reported that mothers generally display more intense reactions to their child's speech disfluency, while cognitive reactions were found to be the dominant response type in both parents. In the Turkish validation study conducted by Yaşar and Özdemir [25], mothers' emotional reaction scores were significantly higher than those of fathers;

however, no significant group differences were found in cognitive or behavioral domains. A cross-cultural study by Hughes et al. [26] demonstrated that the direction of sex-based differences in stuttering attitudes varies by geographical region and cultural context, with male parents in Middle Eastern samples showing more positive attitudes while female parents in European and North American samples tend to hold more positive attitudes toward stuttering, underscoring the importance of considering cultural norms when interpreting gender differences in parental reactions. Despite these findings, the question of which specific reaction dimensions more strongly predict children's communication attitudes, and how these patterns differ as a function of parental role, remains unanswered.

Cognitive responses are reported to be stronger than parents' emotional and behavioral responses, and behavioral responses are driven by emotional-cognitive processes [22,27]. In addition, it is stated that these response patterns may differ between mothers and fathers, especially at the emotional level [25].

Parents' verbal and nonverbal reactions to stuttering affect the child's speaking skills [11,28], may cause them to avoid communication [25], and play an important role in the perception of stuttering as a more negative experience and in the communication attitude of the child towards his/her own speech [29]. Communication attitude, which is a concept that includes the individual's beliefs, emotions, and behaviors towards speech and affects the motivation of the person to interact socially [1], is shaped by the child's age, temperament, and emotional characteristics; cognitive evaluations; and especially environmental reactions [2,4]. Children who stutter tend to develop mostly negative attitudes towards communication due to the difficulties they experience in the social interaction process and the feedback they receive from their environment [11,30,31]. Research has further demonstrated that caregiver perceptions of the child's communication may influence the child's own attitudes; Winters and Byrd [32] found that caregiver-proxy and child reports of com-

munication attitude showed substantial agreement, and that children's speech and language abilities predicted the degree of this agreement, highlighting the interconnected nature of parental perceptions and child communication attitudes. It is seen that children who stutter are aware of stuttering from about age 2, can evaluate and compare their own speech at age 3, and develop more negative communication attitudes than their peers who do not stutter at age 6 [30,31,33,34]. It is also reported that a negative attitude generally increases with age and parallels the increase in the duration and severity of stuttering [4,29,31,35,36]. There is a reciprocal and dynamic association between children who stutter's communication attitudes and parents' reactions to stuttering [1]. This relationship emerges with the mutual shaping of children's communication with their parents [6,28]. Parents' attitudes towards stuttering play an important role in a child's acquisition of healthy communication behaviors [37]. In this context, parenting styles affect a child's speech fluency and communication skills [25,27,38]. It is emphasized that parents' supportive and empathetic responses to stuttering and democratic parental attitudes support the child's sense of security and voluntary participation in speech environments [22,30]. Authoritarian, critical, punitive, or over-controlling attitudes cause children to develop more negative communication attitudes [39].

A review of the existing literature reveals that research on parental reactions to stuttering has predominantly focused on maternal perspectives, while fathers have rarely been examined in a systematic manner. Yet mothers and fathers may display distinctly different reaction profiles in response to their child's stuttering. Available evidence indicates that mothers tend to report higher levels of cognitive, behavioral, and emotional reactions compared to fathers [24,25,40]. However, few studies systematically examine both parents simultaneously and compare maternal and paternal differences. This gap represents a critical limitation in the development of family-based assessment and intervention programs for preschool stuttering.

The purpose of this study is to examine the relationship between parents' reactions to their children's stuttering and their children's communication attitudes regarding their speech.

For this purpose, answers to the following questions were sought:

1. Is there a significant difference between parents' reactions to their child's stuttering?
2. Is there a significant difference between parents' levels of perception of their child's stuttering severity?
3. Is there a significant relationship between parents' reactions to their children's stuttering and children's communication attitudes towards their own speech?
4. Is there a significant relationship between parents' perception levels of their children's stuttering severity and children's communication attitude towards their own speech?

Parents' emotional, cognitive, and behavioral reactions and attitudes towards stuttering have significant effects on children's speech and communication behaviors and constitute an important variable that can affect the course of stuttering and the therapy process [6,20]. In this context, this research aims to examine the relationship between the parents' reactions to stuttering and the children's communication attitudes between 36 and 71 months. The study will likely enrich the literature on parents' roles in supporting children's communication skills with stuttering and guide the necessary environmental and communicative arrangements in counseling processes for families.

METHOD

Study design

In this study, which is based on the relational screening model, a quantitative research method, correlational

research was used to determine relationships between two or more variables.

Participants

The sample was created through purposeful sampling. The study group consisted of 40 children who stutter (ages 36-71 months) who met the predetermined inclusion criteria, along with their parents (40 mothers, 40 fathers). In order for children to be included in the study, the following criteria were sought: (a) being between 36-71 months of age, (b) having a mother tongue in Turkish, (c) showing stuttering symptoms for at least six months, (d) the frequency of stuttering being 3% or more in the evaluation made by the researcher, and (e) the absence of any language, speech, mental, auditory, physical, or neurological disorder accompanying stuttering according to the parental declaration. The inclusion criteria determined for the parents are (a) agreeing to participate in the study voluntarily, (b) having a mother tongue in Turkish, (c) being literate, and (d) not having a diagnosed cognitive, neurological, or emotional health problem that, according to their own statements, may affect the reliability of the research data.

Table 1. Information on Children

Variable	n (%)	Mean (SD)
Age (months)		55.10 (9.863)
Sex		
Female	16 (40.0)	
Male	24 (60.0)	
Age of Stuttering Onset (months)		
25-30	3 (7.5)	
31-36	7 (17.5)	
37-42	11 (27.5)	
43-48	12 (30.0)	
49-54	6 (15.0)	
55-60	1 (2.5)	
Duration Since Onset		
6-12 months	25 (62.5)	
1 year or more	15 (37.5)	

Values are presented as n (%) for categorical variables and Mean (SD) for continuous variables.

The data on the child participants' findings are presented in Table 1. The average age of children is 55.10 months (SD = 9.863).

Data collection tools and process

Data were collected using the Personal Information Form, the Reaction to Speech Dysfluency Scale (RSDS) Turkish version, and the Communication Attitude Test for Preschool Children Who Stutter -Turkish Version- KiddyCAT-TR.

Personal information form

The form prepared by the researchers contains descriptive information about the child and parents. Regarding children, identity information, linguistic characteristics, whether there is any concomitant disorder other than stuttering, characteristics related to stuttering, and family history variables were questioned. In the section on parents, there are questions about their names, surnames, ages, education levels, and stuttering status.

Reaction to speech disfluency scale (RSDS)

It is a 30-item scale developed by Humeniuk and Tarkowski [24] to evaluate parents' responses to their children's speech fluency disorders. Items in the scale, which consists of three subscales including cognitive, behavioral, and emotional responses, are scored between 0 and 2, and high scores indicate negative reactions. The Turkish adaptation of the scale was developed by Yaşar and Özdemir [25], and the Cronbach's alpha internal consistency coefficient was 0.909.

Communication attitude test for preschool and kindergarten children who Stutter-KiddyCAT

KiddyCAT is a 12-item self-report tool developed by Vanryckeghem and Brutten [41] to assess children aged

3-6 who stutter attitudes towards their speech. High scores indicate a negative attitude toward communication. The Turkish adaptation of the scale was developed by Aydın Oral et al. [42], and the internal consistency coefficients were 0.72 for the stuttering group and 0.65 for the non-stuttering group. Test-retest reliability is quite high ($r = 0.99$, $p < .01$).

Data collection process

Children who stutter were reached through speech and language therapists (SLTs) employed at special education and rehabilitation centers providing language and speech therapy services in Istanbul and Kocaeli. SLTs identified children who met the inclusion criteria, and the researcher then interviewed the parents to confirm that the children met the criteria. The researcher informed the parents about the study's purpose, content, and progress. Parents who volunteered to participate were included in the study. Parents who agreed to participate in the study signed an 'Informed Consent Form.' Then one of the parents (mother or father) filled out the 'Child Personal Information Form,' which also includes the 'Parent Information' section. Then, both parents independently completed the 'Reaction to Speech Dysfluency Scale (RSDS)'. The child's evaluation was conducted in a quiet room, without parents, in an environment where only the child and the researcher were present. To determine the frequency of stuttering, the researcher chatted with the child while playing interactive games.

Stuttering frequency was calculated based on speech samples of at least 300 syllables obtained during interactive play sessions between the child and the researcher. The speech samples were audio-recorded and subsequently analyzed using the following formula: Percentage of Stuttered Syllables = (Number of stuttered syllables / Total number of syllables) $\times$ 100. The 300-syllable threshold was selected in accordance with established procedures in the stuttering literature, as this sample size has been widely recognized

as a practical and valid lower boundary for both research and clinical assessment of stuttering frequency [43].

To establish interrater reliability of stuttering frequency calculations, a randomly selected 20% of the speech samples were independently re-analyzed by a second trained speech-language pathologist who was blind to the study hypotheses. Interrater agreement was assessed using the Intraclass Correlation Coefficient (ICC) with a two-way mixed-effects model and absolute agreement type. ICC values were interpreted according to established cutoff points (< 0.40 poor, 0.40-0.59 moderate, 0.60-0.74 good, 0.75-1.00 excellent) [44]. Krippendorff's alpha was also computed to further examine interrater agreement.

Then, 'Communication Attitude Test for Preschool Children Who Stutter-Turkish Version- KiddyCAT-TR' was applied to evaluate the child's attitude towards their own speech. The assessment took approximately 40 minutes. Using voice recordings taken during play and chat, as well as during the test, the child's stuttering frequency was calculated over 300 syllables, and KiddyCAT-TR test responses were checked.

Statistical analysis

The analysis of the research data was carried out using the SPSS 29 (IBM Corp.) statistical program. Normal distribution of the data was evaluated by examining whether skewness and kurtosis values fell within the ± 1.5 range [45]. As a result of this evaluation, it was determined that some variables did not follow a normal distribution. Therefore, both parametric and nonparametric tests were applied according to the distributional characteristics of each variable. Specifically, the Paired Samples t-test was used for comparisons of cognitive and behavioral reaction subscale scores and stuttering severity perception scores between mothers and fathers, as these variables met the assumptions of normality. The Wilcoxon Signed-Rank Test was applied for comparisons of emotional reaction subscale scores and total RSDS scores, as these variables did

not satisfy normality assumptions. The Spearman Correlation Test was used to examine relationships between continuous variables. The Marginal Homogeneity Test was used for comparisons of paired ordinal measurements. All analyses were conducted at a 95% confidence interval, and a p-value of < .05 was considered statistically significant. Where significant differences were found, effect sizes were reported: Cohen's d for the Paired Samples t-test, r for the Wilcoxon Signed-Rank Test, and Cohen's w for the Marginal Homogeneity Test.

Ethical permission for the research

This study was approved by the Üsküdar University Ethics Committee for Non-Interventional Research (Date: August 29, 2024, Decision Number: 61351342/020-334). The procedures of our study were conducted in accordance with the Declaration of Helsinki (2013), and informed consent was obtained from all participants.

RESULTS

Descriptive statistics

Descriptive statistics of the scales used in the study are shown in Table 2. Based on the correlation coefficient obtained in the study ($r = .493$), with $\alpha = .05$ and a total sample size of $n = 40$, the achieved power was calculated as $1 - \beta = 0.914$, indicating that the sample size was sufficient to detect the observed effect with high statistical power.

The mean KiddyCAT-TR score of the children is 5.50 ± 2.088 (Median = 4.00). When the scores of RSDS were examined, the mean total score of the mothers (31.58 ± 9.282 , Median = 33.00) was found to be higher than the mean total score of the fathers (22.25 ± 9.046 , Median = 19.50). This difference was similarly observed in favor of mothers for the cognitive, behavioral, and emotional

response sub-dimensions of the scale. This finding shows that mothers exhibit more negative/intense cognitive, emotional, and behavioral responses to their children's stuttering than fathers do.

Research question 1: Differences between mothers' and fathers' reactions to stuttering

Table 3 presents the results of the Paired Samples t-test and Wilcoxon Signed-Rank Test examining whether there are significant differences between mothers' and fathers' total RSDS scores and subscale scores.

The results indicate that mothers' total RSDS scores and all subscale scores — cognitive, behavioral, and emo-

tional — were statistically significantly higher than those of fathers ($p < .001$), with moderate effect sizes for all comparisons. These findings suggest that mothers exhibit more intense cognitive, behavioral, and emotional reactions to their children's stuttering than fathers do.

Research question 2: Differences between mothers' and fathers' perceptions of stuttering severity

Table 4 presents the results of the Paired Samples t-test examining differences in mothers' and fathers' perceptions of stuttering severity.

Significant difference was established in mothers' and

Table 2. Descriptive Statistics on Scales

Scale	Min	Max	Mean	SD	Median
KiddyCAT-TR	1.00	9.00	5.50	2.088	4.00
Cognitive Reaction (Mother)	7.00	16.00	12.60	2.872	13.00
Behavioral Reaction (Mother)	1.00	17.00	10.85	3.725	11.00
Emotional Reaction (Mother)	0.00	17.00	8.13	4.675	8.00
RSDS Total (Mother)	15.00	49.00	31.58	9.282	33.00
Cognitive Reaction (Father)	6.00	17.00	10.70	2.653	10.00
Behavioral Reaction (Father)	1.00	18.00	7.55	3.741	8.00
Emotional Reaction (Father)	0.00	19.00	4.00	4.151	4.00
RSDS Total (Father)	10.00	53.00	22.25	9.046	19.50

Table 3. Differential Analysis Findings Regarding Mothers' and Fathers' RSDS Scores

Scale	Parent	n	Mean	SD	t / Z	p	d / r
Cognitive Reaction	Mother	40	12.60	2.871	4.060	<.001	0.642
	Father	40	10.70	2.652			
Behavioral Reaction	Mother	40	10.85	3.724	3.807	<.001	0.602
	Father	40	7.55	3.741			
Emotional Reaction ¹	Mother	40	8.12	4.675	-4.058	<.001	0.453
	Father	40	4.00	4.151			
RSDS Total ¹	Mother	40	31.57	9.281	-4.229	<.001	0.472
	Father	40	22.25	9.046			

¹Wilcoxon Signed-Rank Test

Table 4. Differential Analysis Findings Regarding Stuttering Severity Perception

Scale	Parent	n	Mean	SD	t	p	d
Stuttering Severity Perception	Mother	40	1.70	0.648	3.365	.002	0.532
	Father	40	1.40	0.672			

fathers' perception of stuttering intensity ($t = 3.365$, $p = .002$), with a medium effect size ($d = 0.532$).

Table 5 presents the Marginal Homogeneity Test results for the categorical evaluation of stuttering severity.

A statistically significant difference was found between the categorical stuttering severity ratings of mothers and fathers ($\chi^2 = 34.000$, $p = .003$), with a large effect size ($w = 0.922$). Mothers rated 50% of their children in the "moderate" severity category, while 70% of fathers rated their children in the "mild" category.

Research question 3: Relationship between parental reactions and children's communication attitudes

Table 6 presents the findings of the Spearman correlation analysis between children's communication attitude

scores (KiddyCAT-TR) and parents' RSDS scores.

A significant positive correlation was found between the KiddyCAT-TR score and the total RSDS scores of both mothers ($r = .493$, $p = .001$) and fathers ($r = .465$, $p = .003$). Significant positive relationships were found between the child's communication attitude score and the cognitive ($r = .432$, $p = .005$) and emotional ($r = .548$, $p < .001$) response scores of the mothers, and the behavioral ($r = .414$, $p = .008$) and emotional ($r = .420$, $p = .007$) response scores of the fathers. These findings indicate that as children's communication attitudes become more negative, both mothers' and fathers' overall reaction levels increase significantly. In addition, it should be noted that the attitude of the child towards communication shows stronger connections with emotional and cognitive reactions of mothers as compared to emotional

Table 5. Marginal Homogeneity Test Analysis Findings Regarding Stuttering Severity Groups

Severity Level	Mother n	Mother %	Father n	Father %	χ^2	p	w
Mild	16	40.0	28	70.0	34.000	.003	0.922
Moderate	20	50.0	8	20.0			
Severe	4	10.0	4	10.0			

Table 6. Correlation Findings Between KiddyCAT-TR Scores and RSDS Scores

Variable	1	2	3	4	5	6	7	8	9
1. KiddyCAT-TR	1								
2. Cognitive Reaction (Mother)	.432**	1							
3. Behavioral Reaction (Mother)	.208	.330*	1						
4. Emotional Reaction (Mother)	.548***	.617***	.533***	1					
5. RSDS Total (Mother)	.493**	.752***	.772***	.908***	1				
6. Cognitive Reaction (Father)	.236	.428**	-.057	.088	.154	1			
7. Behavioral Reaction (Father)	.414**	.315*	-.079	.335*	.234	.425**	1		
8. Emotional Reaction (Father)†	.420**	.425**	.091	.374*	.337*	.442**	.767***	1	
9. RSDS Total (Father)†	.465**	.444**	-.013	.374*	.306	.635***	.878***	.907***	1

* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7. KiddyCAT-TR and Parental Stuttering Severity Perception Correlation Findings

	KiddyCAT-TR	Mother's Severity Perception	Father's Severity Perception
KiddyCAT-TR	1		
Mother's Severity Perception	$r = .548***$	1	
Father's Severity Perception	$r = .367^*$	$r = .634***$	1

* $p < .05$, ** $p < .01$, *** $p < .001$.

and behavioral reactions of fathers.

Research question 4: Relationship between parental stuttering severity perception and children's communication attitudes

Table 7 presents the results of the Spearman correlation analysis between KiddyCAT-TR scores and parents' perceptions of stuttering severity.

Significant positive correlations were found between the KiddyCAT-TR scores of the children and the stuttering severity perception levels of both mothers ($r = .548$, $p < .001$) and fathers ($r = .367$, $p = .020$). In addition, a positive and significant relationship was observed between mothers' and fathers' perceptions of stuttering severity ($r = .634$, $p < .001$). These findings suggest that as children's communication attitudes become more negative, parents tend to perceive stuttering as more severe, with this relationship appearing stronger for mothers.

DISCUSSION AND CONCLUSION

This study aimed to examine the relationship between parents' reactions to their children's stuttering and their children's communication attitudes regarding their speech.

Maternal and paternal differences in reactions to stuttering

The first finding of the present study that mothers reported significantly higher total RSDS scores and higher subscale scores across all cognitive, behavioral, and emotional domains compared to fathers is partially consistent with previous research. Specifically, the finding of higher emotional reactions in mothers is consistent with the results of Yaşar and Özdemir [25] and Salehpour et al. [40], both of whom reported significantly higher emotional reaction scores in mothers. However, the present study ex-

tends these findings in an important way: whereas Yaşar and Özdemir [25] and Salehpour et al. [40] found no significant differences between mothers and fathers in cognitive and behavioral domains or total scores, the present study identified significant differences across all subscales and total scores. This may indicate the difference between the samples, parenting behavior, and the level of parent-child interaction intensity.

Calculating the maximum average score for both parents in the cognitive subdomain and the minimum average score in the emotional subdomain, it is possible to conclude that parents are likely to assess the child's stuttering problem primarily cognitively, while showing less emotional involvement. This approach agrees with the results of Humeniuk and Tarkowski [24] and Humeniuk et al. [22]. According to Humeniuk et al. [22], the level of cognitive response decreases with increased empathy among mothers, while the level of behavioral response decreases with increased emotional self-control.

The disparity between the profiles of mothers' and fathers' reactions may be explained more broadly considering the parenting culture in Turkey. In Turkish family structures, mothers typically assume the primary caregiving role and spend significantly more time with young children compared to fathers, which may result in greater exposure to and awareness of the child's stuttering-related difficulties. This extended interaction time may contribute to mothers' higher cognitive engagement with stuttering-related concerns, greater emotional investment, and more frequent behavioral responses during the child's speech. Fathers, whose interactions with young children may be more limited in duration and focused on structured activities, may develop response patterns that are more behavioral in nature when they do engage. This interpretation is further supported by Hughes et al. [26], who demonstrated that the direction of sex-based differences in stuttering attitudes is influenced by geographical region and cultural context, with Middle Eastern samples of which Turkey is geographically and culturally prox-

imate showing patterns that differ markedly from Western samples, suggesting that cultural parenting norms play a meaningful role in shaping how mothers and fathers react to their child's stuttering.

Parental differences in the perception of stuttering severity

The second significant finding, which mothers considered their children's stuttering to be more severe compared to the fathers' perception, corresponds to a more general trend of greater overall severity reaction scores in mothers. According to Salehpour et al. [40] parental reaction to children's stammering is associated more closely with perception rather than objective severity. In the same vein, Guttormsen et al. [6] stress the connection between a parent's problem definition of stuttering and a child's communicative problems. Barzegar Bafrooei et al. [46] found out that various clinical and sociodemographic factors including parent's attributes, knowledge and experience regarding stuttering, significantly influence the perception and confidence in managing their child's disorder, thus emphasizing that a severity perception does not depend solely on the severity of speech characteristic, but it is also defined by individual parent's features. All in all, one can formulate an essential research question whether parents' perception of their child's stuttering severity is based on objective criteria or subjective perception mechanisms only. Future research needs to include an objective measurement along with a perceptual severity score, and there is the newly validated Turkish version of the Stuttering Severity Instrument-4 [47], which may serve well in this regard. In contrast to these findings, the present study additionally demonstrates that this perception difference is evident not only at the continuous score level but also at the categorical level, with mothers assigning a larger proportion of children to the "moderate" severity category compared to fathers, who predominantly rated children

as "mild." This categorical finding represents a novel contribution of the present study.

Relationship between parental reactions and children's communication attitudes

The third finding that significant positive correlations were found between parental reactions and children's communication attitudes is consistent with Winters and Byrd [37] and Salehi and Daniels [17], who reported that communication attitude is related to environmental feedback. Humeniuk et al. [22] emphasize that parental anxiety may be related to the child's emotional experiences, while Millard and Davis [23] and Langevin et al. [19] emphasize that parents' negative perceptions and anxieties may negatively affect the child's attitude by increasing intrusive behaviors.

However, the present study extends previous findings by demonstrating that the nature of this relationship differs by parent gender: the child's negative communication attitude was more strongly associated with mothers' cognitive and emotional reactions, whereas it was more strongly associated with fathers' behavioral and emotional reactions. This differential pattern by parental role has not been previously reported in the literature and represents a distinctive contribution of the present study. Winters and Byrd [32] further demonstrated in a large sample of 111 caregiver-child dyads that caregiver-proxy and child reports of communication attitude showed substantial agreement, and that discrepancies between the two may serve as meaningful starting points for parental education and counseling. This finding underscores the importance of assessing both parental perceptions and child self-reports in clinical evaluations, as each provides unique clinical information.

It should be noted that the cross-sectional design of the present study does not allow for the determination of the causal direction of these associations. Therefore, the term "reciprocal association" is preferred over "bidirectional

relationship," as the latter implies a temporal directionality that cannot be established without longitudinal data. The present findings point to a process of reciprocal, cyclical interaction in which negative parental reactions may reinforce negative communication attitudes in the child, which in turn may further intensify parental reactions.

Relationship between parental stuttering severity perception and children's communication attitudes

The fourth finding, that significant positive correlations were found between parental stuttering severity perceptions and children's communication attitudes, is consistent with Winters and Byrd [39], who confirmed a significant relationship between parents' perceived severity and children's communication attitudes. More recently, Winters and Byrd [32] demonstrated in a larger sample that caregivers' proxy reports of their child's communication attitude were significantly influenced by the child's speech and language abilities, suggesting that caregivers' perceptions of communicative difficulty may shape how they interpret and report their child's attitudes. Salehpoor et al. [40] similarly reported that perceiving stuttering as a serious problem can increase emotional responses. Regarding the Palin Parent-Child Interaction (PCI) theory, Millard et al. [38] stress that it is very important to understand that the perception of the parent plays an essential role in creating emotional security for the child while communicating. Safwat and Sheikany [27] state that parents' level of knowledge and beliefs may affect their attitudes. The present study is consistent with these findings and further demonstrates that this relationship appears stronger for mothers than for fathers.

Clinical implications

The present findings have direct relevance to established family-centered intervention models, particularly the Palin Parent-Child Interaction (PCI) Therapy [38].

The recent Turkish adaptation of the Palin Parent Rating Scales [48] confirms the applicability of this framework within Turkish clinical settings, demonstrating that family-based programs for childhood stuttering are widely preferred in Turkey and that parental involvement in the early management of stuttering is considered essential by Turkish families. The present findings support this premise by demonstrating that both mothers' and fathers' reactions particularly at the emotional level are significantly associated with children's communication attitudes. Furthermore, the distinct reaction profiles identified for mothers and fathers suggest that Palin PCI and similar family-centered approaches may benefit from incorporating gender-differentiated components into parental counseling.

For mothers, whose reactions were primarily associated with cognitive and emotional domains, intervention strategies may include psychoeducation about the nature and course of stuttering to address cognitive distortions related to severity perception, as well as emotion regulation techniques to reduce anxiety and guilt responses that may inadvertently increase communicative pressure on the child. For fathers, whose reactions were primarily associated with behavioral and emotional domains, intervention may focus on identifying and modifying specific behavioral responses such as completing the child's utterances, requesting slower speech, or displaying visible signs of discomfort that may negatively affect the child's communication attitude. In this regard, the findings of Yırtık and Cankuvvet [49] are particularly informative, as their qualitative investigation of Turkish parents' experiences and therapy expectations revealed that both mothers and fathers experience significant distress before and during therapy, and that their expectations of treatment outcomes and their perceived role in the therapy process differ substantially, underscoring the need for individualized and culturally sensitive parental counseling.

Furthermore, Winters and Byrd [32] highlight that clinicians should facilitate open and neutral discussions about stuttering with both children and caregivers, as dis-

crepancies between caregiver-proxy and child-reported communication attitudes may serve as meaningful targets for counseling or as distinct intervention goals. Their finding that children as young as 3 years old who stutter demonstrate emerging perspective-taking skills suggests that early, open discussion of stuttering with children and families is appropriate and can support the development of positive communication attitudes.

The findings of this study show that the communication attitudes of children who stutter in the preschool period are significantly associated with parents' especially mothers' reactions to stuttering and their perceptions of stuttering severity. Mothers and fathers may differ in both reaction levels and perceptions of severity, and these differences may be associated with the child's communication attitude through distinct components. In this context, it is important to evaluate the response profiles of both parents separately in clinical practice and to personalize the intervention plans accordingly. It is emphasized that, in preschool stuttering management, parents' reactions, perceptions of severity, and the child's communication attitude are addressed holistically, and intervention approaches that inform families and support emotional-behavioral coping skills should be adopted.

LIMITATIONS

The present study has several limitations that should be considered when interpreting the findings.

First, the tools used to measure parental reactions and perceptions of stuttering severity are based on self-report, which may not fully reflect participants' actual attitudes and behaviors in naturalistic interaction contexts. Social desirability bias may further influence parental responses, particularly for behavioral items that describe potentially negative or intrusive reactions. Similarly, the KiddyCAT-TR relies on children's self-report responses, and preschool children's capacity to accurately reflect on and

verbalize their attitudes may be limited by their cognitive and linguistic development. Winters and Byrd [32] demonstrated that perspective-taking skills, which are required for some KiddyCAT items, show substantial variability in children aged 3-6, and that children with more advanced speech and language abilities tend to provide responses that show greater agreement with caregiver reports. Therefore, it is recommended that future studies complement self-report measures with observational methods, such as structured parent-child interaction tasks and behavioral coding.

Second, the cross-sectional design of the research limits the interpretation of the dynamics and causal relationships of the findings over time. The reciprocal association identified between parental reactions and children's communication attitudes cannot be interpreted in terms of causal direction. Longitudinal studies are needed to better understand the development and effects of these relationships over time.

Third, the present study did not include a standardized objective measure of stuttering severity alongside the parent-reported severity perception scale. Stuttering frequency was calculated over 300 syllables to confirm inclusion eligibility ($\geq 3\%$), but this threshold score was not used as a continuous severity index in the analyses. Although the Turkish version of the Stuttering Severity Instrument-4 (SSI-4-TR) has recently been validated for school-aged children and its validity and reliability for Turkish-speaking adults has also been confirmed [47], a comparable norm-referenced standardization for the preschool age group (36-71 months) has yet to be established. In this regard, there is no way to investigate the relationship between the subjective severity perceptions of the parents and the objective severity score. In future research, an appropriate objective measure of severity needs to be included to compare the results obtained via the perception of parents and observed behaviors related to the disorder. For example, the use of a norm-referenced Turkish adaptation of the SSI-4 is proposed.

Fourthly, only special education and rehabilitation centers in Istanbul and Kocaeli were used to recruit families by means of purposive sampling. This may negatively impact the external validity of the current findings since the characteristics of families who resort to special services and those who don't may vary systematically. Moreover, although a sufficiently small sample size of 40 participants (as evidenced by post-hoc power analysis $1-\beta = 0.914$) has been selected for the study, some limitations are still evident due to its relatively modest size.

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