

# Evaluation of Pediatricians' Referral Processes for Children Who Stutter: Descriptive Cross-Sectional Research

## Pediatric Hekimlerinin Kekemeliği Olan Çocukları Yönlendirme Süreçlerinin Değerlendirilmesi: Tanımlayıcı Kesitsel Araştırma

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**ABSTRACT Objective:** The collaboration between speech and language therapists (SLT) and pediatricians is highly important.<sup>1</sup> Because pediatricians' knowledge on the subject will ensure that children are referred SLTs for further evaluation without delay and for early intervention when necessary. In this regard, the aim of this study has been determined as evaluating the referral processes of pediatricians for children who stutter. **Material and Methods:** A total of 61 pediatricians participated in this study. The Turkish-adapted version of a questionnaire found in the literature was used as a data collection tool. The statistical analysis of the data was conducted using the SPSS 25 software package. **Results:** Among the different specialties to which pediatricians make referrals for stuttering evaluation, SLTs had the highest referral rate, with an average score 6.49 (SD=0.94). In terms of referral criteria, the highest average score was calculated for the criterion of sound and syllable repetition 6.74 (SD=0.54). Regarding the referral of children exhibiting general stuttering characteristics to the relevant specialists (the healthcare professional each pediatrician considered appropriate for the case), the fictional case vignettes with the highest overall referral rates were example case 3 [6.84 (SD=0.49)] and example case 2 [6.67 (SD=0.72)] while the lowest rates were observed for the fictional case vignettes of example case 1 [5.13 (SD=1.79)] and example case 4 [4.97 (SD=1.89)].<sup>2,4</sup> **Conclusion:** It is considered that pediatricians need training and informational programs aimed at their professional development in order to develop a comprehensive perspective on stuttering.

**Keywords:** Early intervention; pediatrics; speech and language therapist; speech therapy; stuttering

**ÖZET Amaç:** Dil-konuşma terapistleri (DKT) ve pediatri hekimleri arasındaki etkileşim oldukça önemlidir.<sup>3</sup> Çünkü pediatri hekimlerinin, konuya yönelik bilgi düzeyleri, çocukların vakit kaybı olmadan ileri değerlendirme ve gerekli durumlarda erken müdahale için DKT'lere yönlendirilmelerini sağlayacaktır. Bu doğrultuda, bu araştırmanın amacı, pediatri hekimlerinin kekemeliği olan çocukları yönlendirme süreç ve işlemlerinin değerlendirilmesi olarak belirlenmiştir. **Gereç ve Yöntemler:** Bu araştırmaya, 61 pediatri hekimi katılmıştır (Ortalama yaş 38,08±9,59). Alanyazında yer alan bir anketin Türkçeye uyarlanmış formu, veri toplama aracı olarak kullanılmıştır. Verilerin istatistiksel değerlendirmesi, SPSS 25.0 paket programı ile yapılmıştır. **Bulgular:** Pediatri hekimleri tarafından farklı branşlara yönlendirilen çocuklar arasında en yüksek yönlendirme ortalaması 6,49 (SS=0,94) ile DKT'lere olmuştur. Pediatri hekimlerinin yönlendirme kriterlerinde ise ortalama değerlendirmede en yüksek ortalama, ses ve hece tekrarı kriteri 6,74 (SS=0,54) olarak hesaplanmıştır. Kekemelik özellikleri sergileyen çocukları ilgili uzmana (yani her bir pediatri hekiminin vaka özelinde uygun gördüğü sağlık uzmanına) yönlendirme ile ilgili kurgusal vaka örnekleri genel katılım ortalaması en yüksek olan örnekler; vaka 3 [6,84 (SS=0,49)] ve vaka 2 [6,67 (SS=0,72)] olurken en düşük oran ise vaka 1 [5,13 (SS=1,79)] ile vaka 4'ün [4,97 (SS=1,89)] örnekleri olmuştur.<sup>4</sup> **Sonuç:** Pediatri hekimlerinin, kekemeliği ilişkin kapsamlı bir bakış açısı geliştirebilmeleri için mesleki gelişimlerine yönelik eğitim ve bilgilendirme çalışmalarına ihtiyaç duydukları düşünülmektedir.

**Anahtar Kelimeler:** Erken müdahale; pediatrist; dil ve konuşma terapisti; konuşma terapisi; kekemelik

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Stuttering, a type of fluency disorder, typically manifests as sound or word repetitions, sound prolongations and blocks, all of which disrupt the natural flow of speech and may adversely impact an individual's psychosocial functioning.<sup>1,2</sup> Based on its etiology, stuttering is categorized into 3 types: neurogenic, psychogenic and developmental.<sup>3</sup>

Developmental stuttering is the most common form and affects over 80% of individuals who stutter.<sup>4</sup> The risk of stuttering varies across age groups and is reported to be higher in children (6-10 years) than in adults.<sup>5</sup> Some publications state that the prevalence of developmental stuttering in society may be more than 5%, and the general prevalence may be less than 1%.<sup>6</sup>

Contemporary perspectives define stuttering as a multifactorial neurodevelopmental disorder. Thus, it is highlighted that multiple factors, such as emotional, linguistic and motor factors, may play a role in the emergence of stuttering and stuttering has a dynamic nature.<sup>7</sup> Within the framework of the International Classification of Functioning, Disability and Health, stuttering is conceptualized not only as a speech disorder but also as a condition that impacts an individual's ability to participate in social interaction.<sup>8</sup>

Most preschool children who begin to stutter recover spontaneously with or without therapy. However, recovery rates decline with age: while approximately 80% in children aged 2-3 years, the rate drops to around 50% in children aged 4-5.<sup>9</sup> Various risk factors have been identified to help clinicians predict which children are at risk for persistent stuttering and which are more likely to recover spontaneously. For instance, several risk factors such as a family history of stuttering, the child being male, stuttering starting at a late age, high frequency of stuttering-like disfluencies, low accuracy in speech sound production, and weakness in receptive and expressive language skills are among the risk factors for the chronicization of stuttering.<sup>10</sup> Furthermore, the longer stuttering lasts after its onset, the lower the likelihood of recovery is.<sup>11</sup> The decrease in the severity of stuttering over time and the decrease in the frequency of disfluencies are factors that positively

predict the prognosis for spontaneous recovery in stuttering.<sup>12,13</sup> In addition, the temperament traits of the child are another risk factor for spontaneous recovery. Accordingly, children with lower negative affectivity and higher self-regulation skills are less likely to have chronic stuttering.<sup>14,15</sup>

Considering the possible negative psychosocial effects of stuttering on the individual and family the importance of early intervention (EI) becomes clearer.<sup>16-18</sup> Besides, given that it is not yet possible to predict whether a preschool child with stuttering will recover without intervention, EI is considered the best practice.<sup>19</sup>

EI in speech-language therapy encompasses a wide range of services provided to infants and young children at risk for communication difficulties.<sup>20</sup> These services include screening, assessment, goal setting, coordinated intervention and family centered planning. Speech and language therapists (SLTs) play a central role in providing EI services either independently or as members of multidisciplinary teams.<sup>21</sup>

Pediatricians in turn, are often the first professionals to observe early signs of developmental difficulties and serve as gatekeepers in the referral process for EI referrals.<sup>22</sup> They are responsible for preventive healthcare, diagnosis, and treatment of various acute and chronic medical conditions.<sup>23</sup> In addition, they are often the initial point of contact for families with developmental concerns, including speech and language difficulties. Most families reach out to a pediatrician before consulting a SLT. The studies on stuttering for pediatricians point out that instead of a wait-and-see approach, pediatricians should refer children with risk factors for stuttering to SLTs for evaluation without delay.<sup>24</sup>

However, the absence of standardized referral guidelines regarding stuttering for pediatricians may result in inconsistent practices. A study on pediatricians' referral processes regarding children with stuttering in the USA found that pediatricians are more likely to refer children who exhibit negative communication attitudes or who show stuttering symptoms during assessments.<sup>25</sup> In the USA, the Childhood Stuttering Screening for Physicians was developed to address this need. This 10-item screener guides pedi-

atricians in recognizing early risk indicators for persistent stuttering and appropriate referral decisions to SLTs.<sup>26</sup>

Costa and Kroll, stated that symptoms such as 3 or more stuttering-like disfluencies in a 100-syllable speech sample, avoidance behaviors, and feelings of tension or discomfort during speech are clues that pediatricians can pay attention to when referring a child to a SLT.<sup>27</sup> Also, parents should be informed about positive (e.g. not interrupting their speech) and negative (e.g. giving well-intentioned but ineffective comments such as “relax” or “breathe”) communication attitudes that can help or harm their children and how these attitudes can affect the way the child relates to his/her own speech.<sup>28</sup> Since EI is a key element of the preventive approach in healthcare, the collaboration between SLTs and pediatricians is crucial. Pediatricians’ knowledge and attitudes towards the importance on EI in stuttering can ensure that children are referred to SLTs for further evaluation and timely support if a need for therapy is identified.<sup>29</sup> However, in the Turkish context, there is no validated referral tool nor a national guideline available for pediatricians to use in cases of childhood stuttering. Furthermore, prior research, has shown that medical students in Türkiye demonstrate limited awareness and understanding of the speech-language therapy profession, suggesting that interdisciplinary readiness may be insufficient.<sup>30</sup>

Despite the growing importance of structured referral systems, little is known about how pediatricians in Türkiye make decisions regarding children who stutter. Therefore the current study aims to investigate the criteria, tendencies and attitudes of pediatricians in Türkiye regarding referrals for children who stutter. In line with this, answers to the following questions were sought within the scope of the study:

1. What are the mean referral scores of the pediatricians participating in the study for children who stutter to different healthcare providers (e.g. SLTs, psychiatrists, psychologists, social workers, neurologists)?

2. What are the study participant pediatricians’ mean referral scores for children with stuttering for stuttering evaluation according to various criteria

(e.g. family history of stuttering, gender, age of onset after 3.5 years etc.)?

3. What are the mean referral scores of the study participant pediatricians for children who stutter-whose characteristics were described through fictional case vignettes to SLTs?

4. What is the percentage distribution of the study participant pediatricians’ initial diagnostic tendencies for children who exhibit stuttering and whose characteristics were defined through fictional case vignettes?

5. Which referral criteria (e.g. age of onset, gender, repetition of sounds etc.) influence the study participant pediatricians’ decisions to refer children who stutter, based on fictional case vignettes?

## MATERIAL AND METHODS

### RESEARCH MODEL

This study was designed with cross sectional descriptive research design. Also this study received ethical clearance from the Ethics Committee of University of Health Sciences Hamidiye Scientific Research (date: December 14, 2021; no: E-46418926-050.01.04—84467). The study was conducted in accordance with the principles of the Declaration of Helsinki.

### PARTICIPANTS

This study used the convenience sampling method. It was conducted as an online questionnaire via Google Forms.

All participants were medical doctors who completed their specialty training in the field of pediatrics (child health and diseases). Participation was voluntary and anonymous. Informed consent was obtained through a mandatory item at the end of the questionnaire. Specifically, participants were asked: “Do you voluntarily agree to participate in this study?” and only those who selected “Yes” were able to submit the questionnaire. To prevent multiple responses from the same individual, Google Forms “Limit to 1 response” feature was enabled.

Pediatricians who currently work in .... (city name) and/or completed their specialty training at

XXX (university name) and who voluntarily agreed to participate in the study constituted the inclusion criteria.

## DATA COLLECTION TOOLS

The questionnaire used in this study was originally developed by Winters and Byrd and was translated into Turkish by the researchers.<sup>25</sup> Thus, firstly, the permission to use the questionnaire was obtained via e-mail from the authors who developed the original questionnaire. Then, it was translated into Turkish by 2 researchers fluent in both English and Turkish, one holding a Master's degree and the other a PhD. To ensure conceptual clarity and linguistic accuracy, the translation was reviewed by an external expert proficient in English who was not involved in the research process.

The 1<sup>st</sup> part of the questionnaire consists of 4 fictional case vignettes, each representing a child with different stuttering-related characteristics. These vignettes were developed to assess how pediatricians evaluate and respond to varying clinical risk factors. Each vignette has 2 Likert-type questions about the definition of stuttering and referral to the relevant specialist. For 4 different fictional case vignettes created in this way, there are 8 question items in total.

For example, 1 vignette described a 4 years old boy who had a family history of stuttering. His mother reported concerns about possible stuttering behaviors, noting that he often avoided speaking in social situations. During the clinical interview, he exhibited sound prolongations and repetitions. The other vignettes followed a similar format, each highlighting different onset patterns, observed behaviors or parental concerns.

In the 2<sup>nd</sup> part of the questionnaire, a total of thirteen question items (6 with multiple-choice answers and 7 open-ended questions) were adapted regarding the descriptive characteristics of the participants. The open-ended questions inquire about the participants' age, gender, the region where they work, and the age distribution of the children they serve. Two of the questions with multiple-choice are related to the demographic characteristics of the participants, namely years of service and workplaces. The other 4 assess whether the participants are familiar with stuttering.

The 1<sup>st</sup> section of the questionnaire's last part has 4 7-point Likert-type questions on to which specialists a child with suspected stuttering is likely to be referred for evaluation or consultation and the likelihood of each referral option. The 2<sup>nd</sup> section contains 9 7-point Likert-type questions on the likelihood of referring a child to SLTs for evaluation or consultation based on nine different criteria (family history of stuttering, age of onset (after 3.5 years), duration since onset (6-12 months), male gender, presence of other speech-language concerns, repetition of sounds/syllables, physical signs such as eye blinking or tension, child's frustration or embarrassment and parental concern regarding fluency).

In the original version of the questionnaire, each vignette was followed by an open-ended question ["Which factor(s) (if any) drove your decision to refer or not to refer?"]. This question was excluded in the current study due to the focus on quantitative analysis.

The questionnaire link was distributed via email to participants. The researchers obtained the contact information through professional networks, pediatric residency alumni groups and institutional email directories.

## DATA ANALYSIS

The data analysis was performed via the SPSS 25.0 package program. A total of 61 pediatricians joined the study, and the demographic characteristics were given as percentages. Numerical parameters were tabulated with their means and standard deviations. Based on the results of the normality analysis, One-way analysis of variance and the independent samples t-test were used to compare the likelihood of pediatricians making referrals to SLTs according to their demographic characteristics and their experience with stuttering cases. The significance level was taken as ( $\alpha=0.05$ ).

## RESULTS

### THE PARTICIPANTS' DEMOGRAPHIC CHARACTERISTICS

According to Table 1, 62.3% of the participant pediatricians were female. The mean age was  $38.08 \pm 9.59$  years ( $SD=9.59$ , minimum=27.00, maximum=65.00).

**TABLE 1:** Percentage distribution of participants' demographic characteristics

		n	%
Age groups	26-30	17	27.8
	31-35	14	23.0
	36-40	13	21.3
	41+	17	27.9
Gender	Male	23	37.7
	Female	38	62.3
Serviced area	Eastern Anatolia Region	13	21.3
	Aegean Region	22	36.1
	Central Anatolia Region	4	6.6
	Marmara Region	21	34.4
	Abroad	1	1.6
Years of service	0-5 years	19	31.1
	6-10 years	17	27.9
	11 + years	25	41.0
Workplace	Public hospitals	14	23.0
	Education and research hospitals	24	39.3
	Private hospitals	8	13.1
	Private clinics	10	16.4
	Healthcare centers	3	4.9
	(refers to maternal and child health units or public outpatient clinics where some pediatricians may occasionally work)		
	City hospitals	2	3.3

Geographically, participants were mainly from the Aegean, Marmara and Eastern Anatolia regions. In terms of workplace, the majority were employed at education and research hospitals, followed by public hospitals and private institutions.

## DESCRIPTIVE QUESTIONS REGARDING THE PARTICIPANTS' KNOWLEDGE OF STUTTERING

In the 2<sup>nd</sup> part of the questionnaire, participants were asked about their familiarity and professional experience with stuttering. As presented in Table 2, 75.4% of the pediatricians reported that they know someone who stutters. None of the participants identified themselves as individuals who stutter. Additionally, 49.1% stated that they had encountered children who stutter either in the past and 19.7% reported currently following such cases. Furthermore, 65.6% indicated that they had previously referred a child for a stuttering evaluation.

## THE PARTICIPANTS' DISTRIBUTION ACCORDING TO THE AGE RANGE OF CHILDREN THEY EXAMINE

The mean percentages of the age groups for the children examined by the participants were as follows: 0-2 years old for 24.9% (M=24.9, SD=23.37), 3-6 years old for 29.22% (M=29.22, SD=24.29), 7-10 years old for 19.74% (M=19.74, SD=16.53), and 11 years old and above for 16.67% (M=16.67, SD=15.45). Also the Table 3 shows rates of the pediatricians to different specialties, along with the corresponding percentages for each referral criterion.

As shown in Table 3, the highest referral rate for stuttering evaluation was to SLTs with a mean of 6.49 (SD=0.94), followed by psychiatrists (M=6.16, SD=1.23) and child psychologists or social workers

**TABLE 2:** The participants' responses to the questions about stuttering

Questions	Responses	n	%
Do you know anyone with stuttering?	Yes	46	75.4
	No	15	24.6
Are you an individual with stuttering?	No	61	100.0
Is there any child with stuttering among your previous or current caseload?	Yes, I have worked with children who stutter in the past.	30	49.1
	Yes, I have had worked with children who stutter in the past, and I also currently follow children who stutter	4	6.6
	Yes, I currently follow children who stutter.	12	19.7
	No, I have not worked with any, nor do I currently follow any.	15	24.6
Have you ever referred a child for a stuttering evaluation?	Yes	40	65.6
	No	21	34.4



**TABLE 3:** Rates of pediatricians' referrals to different specialties and the corresponding percentages based on referral criteria

	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)	$\bar{X}$ (SD)
<b>Refer to provider</b>								
Speech-language pathologist	0.0	0.0	3.3	0.	11.5	14.8	70.5	6.49 (0.94)
Psychiatrist	0.0	1.6	4.9	1.6	16.4	18.0	57.4	6.16 (1.23)
Psychologist or social worker	1.6	0.0	16.4	6.6	13.1	26.2	36.1	5.52 (1.57)
Neurologist	6.6	4.9	24.6	6.6	19.7	21.3	16.4	4.57 (1.81)
<b>Referral criteria</b>								
Family history of stuttering	1.6	1.6	6.6	8.2	14.8	27.9	39.3	5.74 (1.45)
Age of onset after 3.5 years	0.0	0.0	0.0	8.2	6.6	23.0	62.3	6.39 (0.94)
6-12 months since onset	0.0	0.0	3.3	1.6	6.6	16.4	72.1	6.52 (0.94)
Male gender	0.0	0.0	3.3	16.4	16.4	29.5	34.4	5.75 (1.19)
Other speech-language concerns	0.0	0.0	0.0	0.0	6.6	23.0	70.5	6.64 (0.61)
Repetition of sounds and syllables	0.0	0.0	0.0	1.6	0.0	11.5	86.9	6.74 (0.54)
Eye blinking, averted gaze, physical tension while speaking	0.0	0.0	6.6	3.3	8.2	23.0	59.0	6.25 (1.16)
Child frustration or embarrassment	0.0	1.6	3.3	0.0	11.5	26.2	57.4	6.30 (1.09)
Parent concern regarding speech fluency	1.6	0.	4.9	6.6	14.8	32.8	39.3	5.89 (1.29)

SD: Standard deviation

( $M=5.52$ ,  $SD=1.57$ ). The least frequent referrals were to neurologists ( $M=4.57$ ,  $SD=1.81$ ). Among the referral criteria, the repetition of sounds and syllables had the highest mean ( $M=6.74$ ,  $SD=0.54$ ) while family history of stuttering had the lowest ( $M=5.74$ ,  $SD=1.45$ ).

According to Table 4, rating of pediatricians regarding the likelihood of children exhibiting stutter-

ing characteristics based on fictional case vignettes

According to Table 5, regarding the percentages of the pediatricians referring children who stutter and whose characteristics were defined through fictional case vignettes;

As shown in Table 6, there is no significant difference in the comparison conducted for the pediatri-

**TABLE 4:** Rating of pediatricians regarding the likelihood of children exhibiting stuttering characteristics based on fictional case vignettes

	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)	$\bar{X}$ (SD)
The case of example 1 being a child with stuttering	1.6	14.8	11.5	9.8	31.1	23.0	8.2	4.56 (1.60)
The case of example 2 being a child with stuttering	1.6	1.6	0.0	0.	11.5	41.0	44.3	6.18 (1.10)
The case of example 3 being a child with stuttering	0.0	1.6	0.0	3.3	6.6	29.5	59.0	6.39 (0.95)
The case of example 4 being a child with stuttering	3.3	23.0	13.1	13.1	16.4	21.3	9.8	4.20 (1.81)

SD: Standard deviation

**TABLE 5:** Percentages of the pediatricians referring children who stutter and whose characteristics were defined through fictional case vignettes, to SLTs or other specialists they deem appropriate

	Extremely unlikely (1)	Moderately unlikely (2)	Slightly unlikely (3)	Neither likely nor unlikely (4)	Slightly likely (5)	Moderately likely (6)	Extremely likely (7)	$\bar{X}$ (SD)
Referring example case 1 to a specialist for stuttering	3.3	6.6	16.4	1.6	21.3	21.3	29.5	5.13 (1.79)
Referring example case 2 to a specialist for stuttering	0.0	0.0	1.6	0.0	4.9	16.4	77.0	6.67 (0.72)
Referring example case 3 to a specialist for stuttering	0.0	0.0	0.0	1.6	0.0	11.5	86.9	6.84 (0.49)
Referring example case 4 to a specialist for stuttering	4.9	6.6	16.4	11.5	8.2	24.6	27.9	4.97 (1.89)

\*The term "specialist" refers to the healthcare professional (e.g. SLTs, psychologists, neurologists etc.) the pediatrician considers suitable based on the case characteristics.

SD: Standard deviation

**TABLE 6:** Comparison of the pediatricians' likelihood of referring to SLTs according to the age groups and experience

		n	$\bar{X}$	SD	F	p value
Age Groups	26-30	17	6.2941	1.10480	0.355	0.786
	31-35	14	6.5714	0.75593		
	36-40	13	6.6154	0.76795		
	41+	17	6.5294	1.06757		
Years of experience	0-5	19	6.2105	1.08418	1.603	0.210
	6-10	17	6.7647	0.66421		
	11+	25	6.5200	0.96264		

\*One-way analysis of variance was used for the analysis in this table;

SD: Standard deviation

cians' likelihood of referral to SLTs according to the age groups and experience ( $p>0.05$ ). Also, no statistically significant difference was observed in pediatricians' referral tendencies to SLTs in relation to gender, workplace and familiarity with individuals who stutter ( $p>0.05$  for all).

## DISCUSSION

This study investigated Turkish pediatricians' referral tendencies regarding preschool children who stutter, using fictional case vignettes that depicted stuttering-related features. The American Academy of Pediatrics recommends that all professionals work on screening and monitoring to detect different developmental disorders and refer children to the relevant specialists at an early age.<sup>31</sup> Accordingly, pediatricians' awareness and knowledge levels about developmental stuttering affect the referral processes of children to SLTs. For instance, pediatricians with limited awareness and knowledge about stuttering may delay referring children to speech-language therapy services, which can negatively affect the timing and effectiveness of EI.<sup>25</sup>

In this study, pediatricians' referral processes for young children with stuttering were examined through short fictional case vignettes. It was conducted with the participation of 61 pediatricians working in different regions across Türkiye.

The study also examined the percentages of the participant pediatricians referring children who exhibited stuttering and whose characteristics were defined through fictional case vignettes to SLTs. It was

observed that cases in which stuttering symptoms were stated to be clearly observable in a clinical setting were associated with slightly higher referral rates compared to those in which the symptoms were described as less noticeable or not directly observable. Although the differences were not statistically significant, this pattern suggests that pediatricians may feel more confident referring children when they can anticipate observing concrete signs of stuttering in the clinic. Overall, this finding may indicate a potential bias toward observable symptoms in clinical decision-making which could delay referrals in cases where the symptoms are present but not overtly visible.

Similar to the results of this study, Winters and Byrd found that pediatricians are more likely to refer children when they detect observable signs of stuttering to SLT. Consistent with the findings of Winters and Byrd, this study also revealed that participant pediatricians did not consistently pay attention to negative communication attitudes (e.g. Child frustration or embarrassment).<sup>25</sup>

In the context of Türkiye, one potential explanation for the limited attention to emotional or communicative indicators may be the time constraints commonly observed in pediatric outpatient settings. Due to the need to examine a high number of children within a limited timeframe, pediatricians may tend to focus on more overt and immediately observable speech characteristics during evaluations. To better understand this tendency, future research could investigate the relationship between pediatricians' working conditions-such as the number of cases seen per day or average consultation duration-and their referral behaviors. Building on this, future research could incorporate qualitative methods to gain deeper insights into the contextual factors influencing pediatricians' referral decisions. This would allow for a more contextualized interpretation of their responses. Considering the variable nature of stuttering, even if a child does not exhibit stuttering characteristics during the evaluation, s/he may exhibit them after leaving that environment. Therefore, observation of speech characteristics in a limited period of time is not sufficient.<sup>25</sup> Also, even if the child's stuttering severity is low, the emotional response and avoidance behaviors to disfluencies significantly influence the

course of stuttering. Thus, pediatricians should also consider children's emotional and avoidance reactions as part of their referral decision-making process.<sup>14</sup>

The onset age of developmental stuttering is often reported as 2-5 years. This period is stated as a period when children's language development is rapid, and normal disfluencies are frequently encountered in this period. Accordingly, pediatrician's knowledge of the distinction between stuttering and normal disfluency that can be seen in the preschool period will facilitate the referral of appropriate cases to SLTs.<sup>27</sup>

For instance, criteria such as male gender, late onset age of stuttering, family history of stuttering; long-standing stuttering behaviors; persistent and steadily worsening stuttering, without periods of improvement, and the child having sensitive and reactive temperament traits with low self-regulation skills are stated to be important risk factors for stuttering to become chronic.<sup>10,11,13,14</sup> Thus, pediatricians' preliminary evaluation focusing only on children's speech disfluency characteristics can negatively affect the referral practices. This highlights a potential limitation in current pediatric referral practice, where a narrow focus on overt symptoms may lead to the under-recognition of children who exhibit subtler signs related to emotional, behavioral or temperamental characteristics. Pediatricians' awareness of this diversity is essential for making informed decisions about early referral and preventing delays in intervention.

Families of children who stutter may experience fear and anxiety about their child's speech difficulties and the possibility of long term communication challenges which can have an impact on the course of the disorder.<sup>17</sup> At this point, it is crucial that they receive early information about how to manage the process. Thus, pediatricians should make a preliminary evaluation by considering the family's anxiety level, as much as focusing on the child.

In addition, it was observed that individual factors such as age, duration of experience, gender, hospital where they work, knowing someone who stutters, or stuttering accompanying in their caseloads

do not influence the referral processes of the study participant pediatricians. This result is in line with the results of the study by Winters and Byrd. Therefore, it is clear that pediatricians with all levels of experience can benefit from a training program to make appropriate referrals for children with stuttering.<sup>25</sup>

## LIMITATIONS

This study has several limitations. First, the sample size was relatively small, and the regional distribution of pediatricians across Türkiye was not balanced, which may limit the generalizability of the findings. Second, although demographic data such as serviced area and age ranges of the children they serve were collected, this study did not aim to analyze how these variables may be associated with referral responses. Third, contextual variables such as pediatricians' daily workload or appointment durations were not assessed in this study, which may have influenced their referral responses. Additionally, although the questionnaire was carefully translated into Turkish, the translated version was not subjected to formal validity and reliability testing, which may have affected the consistency of the results. These limitations suggest the need for further research with larger, more demographically diverse samples and stronger validation of the measurement tools.

## CONCLUSION

In summary, the current findings suggest that pediatricians may not adequately identify children who do not exhibit stuttering characteristics during their evaluations; and therefore, speech and language therapy services may be delayed. According to the study results, it is thought that pediatricians need training on stuttering. Such a program should include basic information on the characteristics of stuttering, risk factors for persistent stuttering, the importance of early referral and awareness of emotional and behavioral signs-such as avoidance behaviors or communication related anxiety that may not be overtly observable during clinical evaluations. These components can help pediatricians make more accurate and timely decisions when referring children to SLTs. In practice, in addition to formal training, pediatricians may benefit from brief, evidence-based reference materials or



informational handouts to assist in identifying and referring children with stuttering more effectively. Considering the possible negative effects of stuttering in the future, training processes are predicted to be functional within the scope of preventive healthcare services in managing stuttering in children.<sup>32,33</sup>

Furthermore, it is recommended that SLTs play an active role in developing and delivering these trainings. Interdisciplinary workshops or collaborative case meetings may also strengthen awareness and cooperation. Additionally, stuttering-related content should be integrated into all levels of pediatric medical education-from undergraduate studies to residency and post-specialization training-to ensure that early identification and referral decisions are consistently supported.

In order to reach more detailed results on the issue, the study can be repeated with a larger group of participants from different regions in Türkiye. Furthermore, studies can be conducted to examine the effectiveness of the training programs on stuttering for pediatricians or medical faculty students.

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*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### Authorship Contributions

**Idea/Concept:** Ahsen Erim, Ayşe Aydın Uysal; **Design:** Ahsen Erim, Ayşe Aydın Uysal; **Control/Supervision:** Ahsen Erim, Ayşe Aydın Uysal; **Data Collection and/or Processing:** Özge Yendur; **Analysis and/or Interpretation:** Ahsen Erim, Ayşe Aydın Uysal; **Literature Review:** Ahsen Erim; **Writing the Article:** Ahsen Erim, Ayşe Aydın Uysal; **Critical Review:** Ahsen Erim, Ayşe Aydın Uysal, Zuhal Gündoğdu; **References and Fundings:** Ahsen Erim, Ayşe Aydın Uysal, Özge Yendur, Zuhal Gündoğdu; **Materials:** Özge Yendur

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