DKYAD Dil, Konuşma ve Yutma Araştırmaları Dergisi

Research Article

Clinical Decision-making and Management for Children with Speech-Sound Disorders in Türkiye

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ABSTRACT

Purpose: The purpose of the present study was to gain insight into the solution-oriented modalities utilized by Speech and Language Therapists (SLTs) in clinical diagnosis and intervention for children with Speech Sound Disorder (SSD).

Method: A constructivist modality was employed within a qualitative paradigm, with phenomenology serving as the main study methodology to delve into how SLTs administer therapy to children with SSD. Interpretive phenomenology was chosen as the analytical modality to uncover the often unconscious meanings embedded in common life practices. 12 SLPs with professional experience ranging from 1 to 20 years participated in the research. The research data were collected through online access and semi-structured one-on-one interviews between the researcher and the participants. The semi-structured interviews were transcribed, and a dataset was created. To strengthen the validity of the research findings, direct quotes from the participants were included when compiling the report. To ensure the consistency of data analysis, the data was analyzed by another field expert other than the researchers.

Results: The findings indicate that SLTs employ a range of evaluations for diagnosing SSD, often complemented by observation and a case design approach. The selection of intervention strategies is influenced by factors such as the child's preferences, age, specific diagnosis, and severity of the disorder. Additionally, SLTs emphasize the significant role of parents in both the diagnosis and intervention processes.

Conclusion: These findings underscore the necessity for (a) distinguishing which condition, SSD or any accompanying disorders, is more pronounced in the child, (b) the development of a fast and easy-to-apply comprehensive differential diagnosis tool to assess daily life participation, (c) updates to existing evaluation tools, and (d) the dissemination of practices/training to promote the preference for evidence-based intervention modalities in clinical practice for SSD.

Keywords: speech-sound disorders, clinical decision-making, evaluation, therapy, approaches

DKYAD Dil, Konuşma ve Yutma Araştırmaları Dergisi

Türkiye'de Konuşma Sesi Bozukluğu Olan Çocuklar için Klinik Karar Verme ve Yönetim

ÖZET

Amaç: Bu çalışmanın amacı, konuşma sesi bozukluğu (KSB) olan çocuklara yönelik klinik tanı ve müdahalede dil ve konuşma terapistleri tarafından kullanılan çözüm odaklı yöntemler hakkında fikir edinmektir. Bu doğrultuda, ilgili araştırma ile türkiye'de görev yapan DKT'lerin KSB ile ilgili görüşleri, KSB'ye sahip bireyleri değerlendirme süreçleri, KSB müdahalesinde uyguladıkları yöntemler, KSB'si olan çocukların terapi sürecinde ebeveyn rolleri hakkındaki görüş ve uygulamaları araştırılmıştır.

Yöntem: Niteliksel bir paradigma içinde yapılandırmacı bir yöntem kullanılmış ve dil ve konuşma terapistlerinin konuşma sesi bozukluğu olan çocuklara terapiyi nasıl uyguladıklarını araştırmak için yorumlayıcı fenomenoloji analiz yöntemi kullanılmıştır. Araştırmaya 1 ila 20 yıl arasında değişen mesleki deneyime sahip 12 DKT katılmıştır. Araştırma verileri çevrimiçi erişim ve araştırmacı ile katılımcılar arasındaki yarı yapılandırılmış bire bir görüşmeler yoluyla toplanmıştır. Yarı yapılandırılmış görüşmeler yazıya dökülmüş ve bir veri seti oluşturulmuştur. Bulguların yorumlanması aşamasında, herhangi bir genelleme yapılmadan veriler analiz edilmiştir. Araştırma bulgularının geçerliliğini güçlendirmek için, katılımcı ifadelerinden doğrudan alıntılar eklenmiştir. Veri analizinin tutarlılığının sağlanması için ise veriler araştırmacılar dışında başka bir alan uzmanı tarafından analiz edilmiştir.

Bulgular: Veri setinin analizi sonucunda; terapi sürecindeki zorlayıcı durumlar, kullanılan değerlendirme araçları, bu değerlendirme araçları hakkındaki görüşler ve öneriler, müdahale yaklaşımları, aile katılımını sağlamaya yönelik uygulamalar ve terapi sürekliliğini sürdürme stratejileri şeklinde 6 ana tema belirlenmiştir. Bulgular, dil ve konuşma terapistlerinin konuşma sesi bozukluğu tanısı koymak için genellikle gözlem ve vaka tasarımı yaklaşımı ile tamamlanan bir dizi değerlendirme kullandığını göstermektedir. KSB'ye yönelik formal değerlendirme araçlarından Türkçe Sesletim ve Sesbilgisi Testi'nin ise katılımcıların bazıları tarafından zaman zaman uygulanmakta olduğu anlaşılmıştır. DKT'ler aynı zamanda bu değerlendirme aracına yönelik içeriğindeki bazı görsellerin artık çocuklar tarafından aşina olunmayan nesneleri temsil etmesi sebebiyle güncellenmesi gerektiğine yönelik ihtiyaçtan bahsetmiştir. KSB'ye yönelik müdahale stratejilerinin seçimi; çocuğun tercihleri, yaşı, spesifik tanısı ve bozukluğun ciddiyeti gibi faktörlerden etkilenmektedir. Ek olarak dil ve konuşma terapistleri hem tanı hem de müdahale süreçlerinde ebeveynlerin rollerinin önemini vurgulamaktadır. DKT'ler KSB terapi sürecinde yaşadıkları zorlukları dile getirirken de, aile katılımının kendileri için en zor adım olduğunu, bunun sebebinin ise çocukların terapide öğrendikleri bilgileri evde aileleriyle birlikte uygulamamaları nedeniyle unutmaları olduğunu, ikinci zorluğun ise ailenin yüksek beklentileri olduğunu belirttiler.

Sonuç: Çalışmanın bulguları, KSB'li çocuklar için DKT'lerin klinik yönetimine ilişkin içgörü sağlamaktadır. Çocuğun bireyselliği ve terapiye ebeveyn katılımı, DKT'lerin klinik kararları üzerindeki en önemli etkiler olarak belirlenmiştir. Ayrıca, çoğu DKT'nin kendi deneyimlerine dayanan bir değerlendirme ve müdahale yöntemi seçtiği görülmektedir. Ancak, bu uygulama danışanlar için en iyi seçenek olmayabilir. Türkiye'de belirli tanılar ve belirli vaka grupları için KSB'de hangi müdahalelerin (veya müdahale kombinasyonlarının) en etkili olduğunu belirlemeye yönelik acil çalışmalara ihtiyaç olduğu düşünülmüştür. Aynı zamanda bu sorunların çözülmesinin zaman alacağı da düşünülmektedir. Kısa vadede ise, dil ve konuşma terapisi öğrencileri ile DKT'ler için eğitimin iyileştirilmesi önerilmektedir. Bu şekilde, DKT'lerin bir tanı aracı ve müdahale yöntemi seçmenin tüm farklı yönlerini hesaba katmak için iyi donanımlı hale gelebileceği düşünülmektedir. Bulgular, (a) KSB ve eşlik edebilecek diğer durumlardan hangisinin çocukta daha belirgin olduğunun ayrımı, (b) günlük yaşama katılımı değerlendirmek için hızlı ve uygulaması kolay kapsamlı bir ayırıcı tanı aracının geliştirilmesi, (c) mevcut değerlendirme araçlarının güncellenmesi ve (d) KSB için klinik uygulamada kanıta dayalı müdahale yöntemlerinin tercih edilmesini teşvik etmek için uygulamaların/eğitimlerin yaygınlaştırılması gerekliliğinin altını çizmektedir.

Anahtar Sözcükler: konuşma sesi bozuklukları, klinik karar verme, değerlendirme, terapi, yaklaşımlar

Introduction

Speech Sound Disorders (SSD) is a general term used to describe problems with how speech sounds are perceived, produced, or understood. This includes difficulties with the physical act of speaking, recognizing speech sounds, or using the rules that determine how speech sounds are organized and combined in a language. (American Speech, Language, and Hearing Association (ASHA, n.d.). According to ASHA, SSD is divided into two subcategories: organic SSD and functional SSD. Organic SSD is mentioned when the cause of SSD is related to motor/neurological, structural, or sensory/perceptual reasons. Functional SSD, on the other hand, is mentioned when there is no known cause for the SSD.

Articulation is defined as the processes involved in the planning and execution of smooth sequences of overlapping gestures of speech organs (Fey, 1992). Phonology, on the other hand, is referred to as a much broader concept than “articulation”, which refers to the language component managing the arrangement of speech sounds. Phonology includes the repertoire of phonemes in a language; in other words, it includes sounds that change the meaning of a language (Fey, 1992). In this context, articulation disorder is a speech disorder in which individuals face difficulties at the phonetic level and cannot produce certain perceptually acceptable phonemes. It also refers to a deteriorated and isolated sound production or the production of the same sound in words or sentences during imitation and spontaneous speaking tasks (ASHA, 2023; Bernthal et al., 2017; Bowen, 2015). Phonological disorder, on the other hand, appears when the rules on speech sounds are not acquired adequately or are acquired incorrectly. Phonological disorders are caused not by not pronouncing a sound correctly, but by using it incorrectly.

The long-term goals for clients with SSD are defined as normalized speech and successful communication (Sancibrian, 2017). The steps taken to achieve these objectives also reflect the unique

combination of characteristics, skills, and experiences that each client brings with him/her to the therapy process. When the literature was reviewed, it was found that a wide variety of factors were mentioned affecting clinicians' decisions about intervention for speech sound disorders (Dodd et al., 2002; Kamhi, 2006). It is already known that various studies report that they are mostly affected by the changes in client behaviors when making clinical decisions on this issue (Kamhi, 2006; Ylvisaker, 2004). It is also mentioned in the literature that it is not easy to make good clinical decisions and that the availability of high-quality studies can certainly help the process, However, research studies are only one of several other factors affecting clinical decision making (Kamhi, 2006). In this context, the purpose was to contribute to clinical practices and related literature by providing valuable information in terms of the findings of the present study.

Clinical reasoning or practical decision-making refers to thinking and making decisions as a healthcare provider in a context-related condition (Higgs et al., 2008). It is a contextually interactive phenomenon that involves two elements (Higgs et al., 2008); (a) diagnostic evaluation and interpretation, in other words, collecting data and analysis, and (b) therapeutic evaluation, in other words, making sure of the client's conditions and needs (Ajjawi & Higgs, 2008). It is reported in previous studies that it is difficult to demonstrate a clinical solution-oriented modality for speech sound disorders (Diepeveen et al., 2020). It is already known that clinicians seldom talk about clinical evaluation and interpretation (Hoben et al., 2007). ASHA recommends that individuals who have SSD find ways to maximize the therapy outcomes of SLTs, emphasizing that this is a major difficulty to plan by trying to provide an effective, efficient, and evidence-based modality.

Classification Systems for Speech Sound Disorders

Various diagnostic classification systems and models with etiological, descriptive-linguistic, or processing modalities were presented in the international literature to classify SSD (Tyler, 2010). It is already known that two classification systems are predominantly preferred in our present day

(Terband et al., 2019; Waring & Knight, 2013): Dodd's Differential Diagnostic Model (DDDM) (Dodd, 2005) and Shriberg's Speech Disorders Classification System (SSDCS) (Shriberg et al., 2010, 2017).

DDDM is a psycholinguistic model of speech production and development that includes categories of phonetics, phonemics, motor planning, programming, and execution. In this model, articulation disorders are in the phonetic category; phonological delay, consistent atypical phonological disorder and inconsistent phonological disorder are examined under the phonemic category, and childhood apraxia of speech (CAOS) is examined under the motor planning, programming, and execution category (Dodd, 2005). SSDCS, on the other hand, is based on the putative etiological background of the speech problem involving categories such as speech delay-genetics, speech delay-otitis media with effusion, speech delay-developmental psychosocial involvement, speech errors-/s/, speech errors-/r/, motor speech disorders not otherwise specified, motor speech disorders-dysarthria, and motor speech disorders-CAOS. However, not all categories have specific and sensitive diagnostic markers to provide differential diagnoses (Terband et al., 2019). Also, it is reported in the literature that there is no consensus on a classification system because of the heterogeneity among children with SSD and that individuals who have SSD differ in terms of severity, etiology, speech characteristics, involvement of other aspects of the linguistic system, therapy response, and maintenance factors (Dodd, 2011).

Assessment of SSD

Several recommendations and guidelines are available regarding the evaluation of SSD in children. Although children with SSD constitute a heterogeneous group, evaluation of speech output is essential because they all produce speech that does not cover expected targets (Barrow et al., 2021). The evaluation of speech sounds may consist of screening and/or comprehensive evaluation. The first provides a quick evaluation to determine whether a problem exists and whether a more comprehensive

evaluation is required. A comprehensive set of evaluations involves connected speech and single-word sampling, as well as stimulability and contextual testing. A comprehensive evaluation of speech sounds also involves complementary procedures (e.g., anamnesis, orofacial examination, audiological screening, and perceptual testing). All these data are later compiled and interpreted (Bernthal et al., 2017) for a variety of reasons, including deciding whether there is a problem, the nature of the problem, and what the therapy goals might be (Bernthal et al., 2017). It is already known that the time for evaluation activities (e.g., administering formal tests, communicating with parents) differs between SLTs and is significantly associated with the length of professional experience, not the caseload dimension (Skahan et al., 2007).

Clinicians have various assessment options to diagnose SSD. One method is a single-word test designed to obtain a general overview of how vowels and consonants are produced in all positions (e.g., Ankara Articulation Test (AAT) for Turkish, (Ege et al., 2004). Another method includes connected speech samples, phonological analysis, and inconsistency tests (Macrae, 2016). The Turkish Pronunciation and Phonology Test (SST) (Topbaş, 2006) is among the formal assessment tools that can be used for this purpose in Turkish.

Treatment of SSD

The intervention procedure begins with the SLT making a diagnosis and selecting from numerous intervention strategies (Baker & McLeod, 2011a). SLTs develop therapeutic plans depending on the number of intervention goals to be addressed in each session, as well as how these objectives are implemented after establishing acceptable therapy goals. A particular strategy may not be suitable for all children, and strategies may change throughout the intervention process as the child's needs change. When faced with a phonological disorder, SLTs can choose from many different intervention approaches (Baker et al., 2018). Although traditional articulation interventions aim to improve isolated speech sounds, phonological intervention aims to change the sound system. The

theoretical perspective on phonological development and therapy has significant effects on the intervention objectives and the modality employed to achieve these goals in some cases (Kamhi, 2006).

The choice of intervention strategy requires SLT to consider therapeutic and scientific perspectives as well as differential diagnosis and factors associated with the child's background (e.g., age, family circumstances, and parental cooperation) (Baker & McLeod, 2011b; Dodd & Bradford, 2000). For this reason, clinical judgment plays critical roles for SLTs during the diagnostic process and the intervention stage. However, little is known about how this process is implemented in daily practice.

An effective therapy is defined by its ability to offer the quickest path to achieving normal speech. However, the nature of the therapy modality and therapy goals are not the only factors that affect the effectiveness of the therapy. It can be argued that service delivery factors may play more important roles in how quickly a child normalizes speech than the modality employed and the targets selected. Service delivery factors include the setting in which therapy is provided (e.g., clinical setting, classroom, home, etc.), participants (e.g., individual, group, family-based), and the therapy program (Kamhi, 2006).

Purpose of the Study

The purpose of the present study was to investigate the clinical reasoning of SLTs in daily practice by using a qualitative study design. SLTs who are active in various settings in Türkiye participated in a semi-structured interview on non-directive, open-ended questions. The interviews focused on what choices SLTs made for diagnosing children with SSD and in planning and implementing interventions. This study aimed to seek answers to the following questions:

1. What steps does an SLT take to diagnose a child who has SSD when it is suspected, and are there methodological differences among SLTs?

2. What are the views of the SLPs regarding SSD?
3. What methods and teaching strategies are employed by SLTs?
4. According to SLPs, what is the function of families in the therapy process?

Method

Research Design

A constructivist modality was employed in the present study within a qualitative paradigm, which dictates that "reality and knowledge are constructed through communication, interaction and practice" (Tracy, 2012). Phenomenology was adopted as the main methodology to explore how SLTs provide therapy to children with SSD. Interpretive Phenomenology (Smith & Osborn, 2008) was preferred as the analytical modality because it aims to go further beyond the definition of a phenomenon (i.e., descriptive phenomenology) to discover the often unconscious meaning in common life practices (Lopez & Willis, 2004). SLTs may not always be consciously aware of the meaning included in daily clinical practice with children with SSD or how this affects their clinical decision-making processes. All of this can be inferred from the narratives they tell (Lopez & Willis, 2004).

Participants

The maximum variation sampling method was employed to identify the participants who could provide a full and enhanced understanding of the phenomenon under investigation among purposeful sampling methods. In the maximum variation sampling method, the purpose is to explain a common phenomenon and different dimensions between cases. Using this sampling method allows us to express in detail the specific characteristics of each case associated with the sample and to uncover the common themes that may occur between different cases and their values (Patton, 2002; Yıldırım & Şimşek, 2018). The study was announced through special interest groups and social

media. 12 SLPs who have expertise in working with more than one child with SSD and who are still working with this population were participated in the study.

The average professional experience of the participants is 5 years. Each SLT participating in the study was coded as "AA, BB" without declaring any identifying information and was included in the study. Table 1 shows the demographic data of the participants.

Table 1

Demographic characteristics of participants

Participant	Educational Status	Duration of Professional Experience	Workplace
AA	Bachelor of Speech and Language Therapy Master of Speech and Language Therapy (continue)	4 years	Private Clinic
BB	Bachelor of Speech and Language Therapy.	4 years	Private Clinic
CC	Doctorate of Speech and Language Therapy	8 years	University Private Clinic
DD	Bachelor of Speech and Language Therapy Master of Speech and Language Therapy	About 5 years	Center of inclusive living
EE	Bachelor of Speech and Language Therapy Master of Speech and Language Therapy	About 2 years	Special Education and Rehabilitation Center Private Clinic
FF	Bachelor of Speech and Language Therapy, Master of Speech and Language Therapy	2 years	Special Education and Rehabilitation Center
GG	Bachelor of Physiotherapy and Rehabilitation Master of Speech and Language Therapy Doctorate of Speech and Language Therapy	4 years	University Hospital of University Private Clinic
HH	Bachelor of Speech and Language Therapy Master of Speech and Language Therapy	2 years	Private Clinic
JJ	Doctorate of Speech and Language Therapy	16 years	University Special Education and Rehabilitation Center

Table 1 *(Continued)*

Participant	Educational Status	Duration of Professional Experience	Workplace
KK	Bachelor of Speech and Language Therapy Bachelor of Psychology Master of Speech and Language Therapy	5 years	Special Education and Rehabilitation Center
LL	Master of Speech and Language Therapy Doctorate of Speech and Language Therapy (continue)	5 years	University Hospital of University
MM	Master of Speech and Language Therapy Doctorate of Speech and Language Therapy (continue)	6 years	University Private Clinic

Data Collection Tools

The data of the present study were collected through online access and semi-structured interviews conducted with the second researcher and participant SLTs. The Semi-Structured Interview Method was preferred to direct the discussion and allow spontaneity (Serry & Liamputtong, 2017). In the study, the purpose was to reach detailed data about the applications, suggestions, and expectations of SLTs regarding the service provision for SSD cases within the framework of certain topics by applying semi-structured interviews. Interview questions were created through the identification of themes from previous studies that investigated the same field, clinical applications of SLTs, and clinical decision-making (Brumbaugh & Smit, 2013, Joffe & Pring, 2008, McLeod & Baker, 2014, Pascoe et al., 2010). Interview questions were also reviewed by other clinicians with doctoral degrees, both of whom had clinical experience working with children with SSD. Relevant experts provided feedback on the interview questions and adjustments were made in this respect. Interview questions were asked to individuals who had SSD and who were not included in the study and were also piloted with an SLT that continued to work in the field.

Data Collection Process

The semi-structured interviews were conducted with online access over "Zoom Video Communications", where the researcher and the participant were one-on-one. The interviews were audio and video recorded to be transcribed verbatim later with the consent of the participants. Participation in the study was voluntary. Also, participants were included in the study anonymously. No identification information was requested from them. Data collection was performed between 01/08/2023 and 30/08/2023 The interviews were performed with interview forms consisting of 9 predetermined questions.

To guarantee the validity and reliability of the research, all participants were asked to answer every item on the relevant form. In this process, the order of answering the questions may vary in line with the answers given by the participants. If the participants misunderstood the question, the questions were repeated or explained in a way that would enable them to understand. As well as these, different questions that were not included in the form were also asked the participants, depending on the statements of the participants. Each SLT who participated in the study was included in the study by being coded without declaring any identity information such as "AA, BB". The interviews lasted between 15 minutes and 33 minutes. A dataset of 56 pages was obtained after translating these interviews. Language transitions between English and Turkish, as well as vice versa, were ensured by being reviewed by three SLTs with a PhD level of proficiency in English.

Analysis of Data

The audio recordings obtained in the interviews were transcribed verbatim. Then, letters were given to each participant to ensure anonymity. The voice recordings of participants were transferred to the MAXQDA 20.4.0 package program, which was used for content analysis. Then, a coding key was prepared and transferred to the MAXQDA Coding System, considering both the literature and the interview questions. Then, the data were coded line by line and the new codes were added to the

system. The data were read repeatedly during the coding process and the codes were checked twice after the coding. The code list was sent to an expert to check the codes for the credibility of the study. According to the expert opinions, relevant editing was made in the codes and themes. Visuals of the finalized codes and themes were created in MAXQDA and made ready for reporting.

Criteria in Qualitative Studies

The study guaranteed comprehensiveness and rigor by obtaining ethics committee approval to confirm participants, maintaining transparency in the methodology and analysis, and accurately including quotations from the interview transcriptions. The participant confirmation process was accomplished by sending transcripts of interviews to provide participants with an opportunity to correct errors or misinterpretations in transcripts and remove potentially identifying information. To analyze the data from different perspectives, data-source variation was employed in which meeting notes and diary reflections were considered along with interview notes. Investigative variation includes a co-authored review of two transcripts to validate categories (Patton, 2015). The interviewer employed a reflective diary before and throughout the study to express bias and clinical experiences regarding the management of SSD and discussed it with the co-author. This reflection process was maintained throughout the study with regular meetings with the co-author.

One of the factors affecting the credibility of qualitative research is issues such as misinterpretation of data and incorrect development of themes. To prevent these and similar issues, the practice of asking experts in qualitative research methods, who are knowledgeable about the research topic, to review the study from various perspectives is known as peer debriefing. In this context, the credibility of the study was supported by having transcripts reviewed by another PhD-level speech and language therapist, who is not involved in the research, to verify the categories.

Ethics Commission Approval

The study received approval from Bahçeşehir University Scientific Research and Publication Ethics Commission (Number: E-85646034-604.02.02-62466, Date: 20.07.2023).

Results

The six main themes that emerged during the analysis process, the codes associated with these themes, and the direct quotations of the participants are given in this part of the study. These themes include: Challenging situations in the therapy process, evaluation tools used, opinions and suggestions about these evaluation tools, intervention approaches, practices to ensure family participation, and strategies for maintaining therapy continuity.

Challenging Situations in the Therapy Process of SSD

Participants talked about difficult conditions during the SSD therapy process (Figure 1) saying that family participation was the most difficult step for them because of issues such as children are forgetting what they have learned in therapy as a result of the family not practicing with their child at home, and second difficulty was mentioned as the family's high expectations.

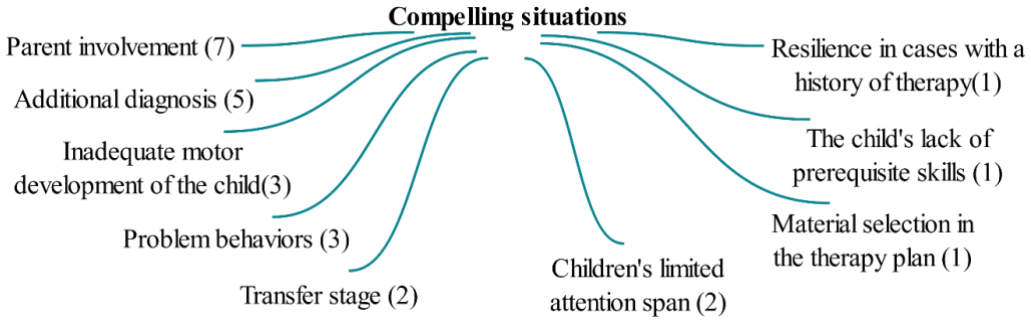
"Actually, one of the most difficult processes, err, was family involvement. Because families do not want to do much homework. Well… In the SSD in general, err, it needs to be done a lot at home. It's pushing a little." (EE)

"Other than that, the family's expectations are very important. For example, if a child has a speech sound disorder and cannot produce a single sound, such as the 'r' sound, the situation becomes more challenging. If there is a time constraint—such as needing to achieve results within a month or moving to a new location after a month—it becomes difficult to address the issue adequately. Besides that, I can't think of any other challenges at the moment." (GG)

Participants expressed difficulties such as the child's comorbidity, deficiencies in motor development, problematic behaviors, children's limited attention span, transfer stage, material selection in the therapy plan, the child's lack of prerequisite skills and resistance to therapy in children who have previously received therapy, as a difficult situation.

"The most challenging cases involve severe phonological impairments, where a lack of attention negatively impacts the entire process, including fine motor skills. Cognitive processes are also involved, particularly in cases where there are accompanying mental disabilities. However, if the child is not developmentally supported, attention processes can be severely limited, especially in children who are somewhat more delayed than their peers. This limitation affects their focus on activities and continuity. Therefore, before beginning therapy, I pay extra attention to addressing these other developmental processes." (NN)

Figure 1. *Compelling situations in SSD*



Assesment Tools for SSD: Comments and Suggestions

The participants explained the formal and informal evaluation tools they employed in SSD and their opinions about these tools (Figure 2). Among the formal evaluation tools, SST and subtests of SST, and informal evaluation methods, language sampling, and qualitative observations are the evaluation methods frequently employed by the participants.

"I use SST for evaluations, and it generally serves my needs well, as it provides a comprehensive assessment from all aspects. I also take something about natural language sampling. I am taking a natural language sample, if s/he can read and write, I give a small text to read, a few pages, or ask what did you do today? In my daily life, I gather information both while playing games and through various other activities related to these issues." (HH)

"Tell something you talk about in daily life, how was today or what do you like, which cartoon do you like more? I listen about it, and I employ this type of application to pay attention to the inconsistency-consistency, the intelligibility of speech, what and how much it makes a difference." (AA)

"Well… I usually employ SST, but during the evaluation, I always play when the child comes. You know, I determine the game in this respect, see which sounds the child has more problems with, and then I do the SST." (DD)

Nine participants said that they found the evaluation tools insufficient and the visuals and some target words in the standardized tests must be updated because there were some images that children did not recognize. Also, it was pointed out that these standard tests could be combined with technology and that tools such as animation could be employed. Participants also said that a perceptual evaluation was made in standard tests, but more context-appropriate, inclusive, and attention-grabbing evaluations must be made. They added that there are no standardized tests evaluating oral-motor abilities and early literacy skills.

"You know, it could be something like visual versions of Lali's cards or toy materials. Perhaps every sound you make could even be represented as an animation. There might be an application that allows us to show or visualize how a sound is produced by displaying the inside of the mouth, providing a complete production and sound of that voice. This could be particularly beneficial for

the child, as they often need more stimulus. Such a tool could serve both as a stimulus and as an animation that demonstrates exactly how the sound is produced." (BB)

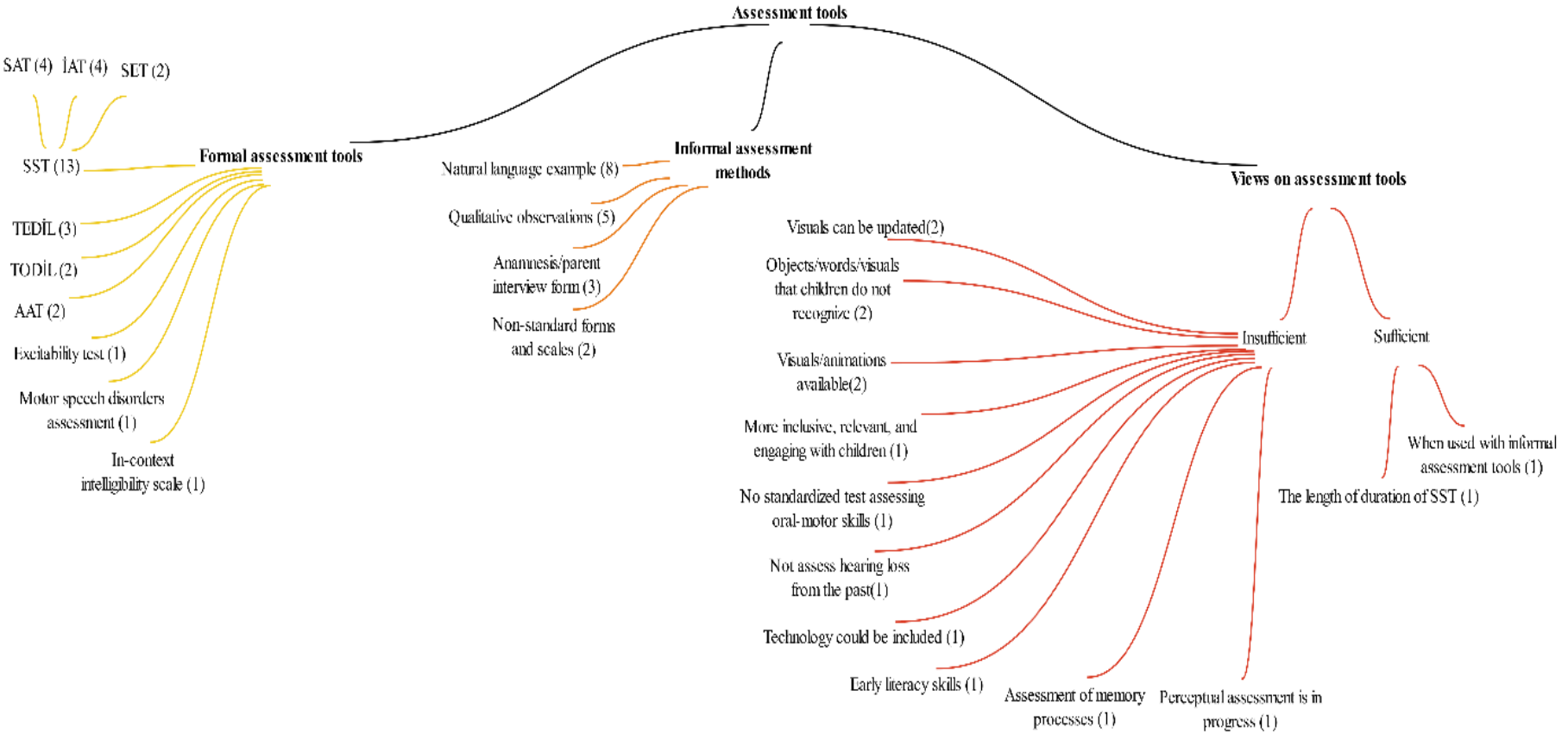
"Actually, I do not find it enough. I do not find it enough. For example, SST has pictures of matches and radios. You know… Children do not even know that anymore. You know... They do not have their attention after a while. Well... they can become a little uncomfortable when there is something they do not know. Therefore, that is enough… Maybe a revision might be better for the tests." (DD)

Six participants said that the evaluation tools were adequate. Although one participant said that standard tests were sufficient when employed with informal tools, another participant said that the implementation period of SST was too long.

"Therefore, yes, I find it sufficient in guiding the process for the time being." (NN)

"It is sufficient for me, I can scan more quickly, what the child is doing and what s/he cannot do, but of course, spontaneous speaking is also very important because one of the criticisms of articulation tests give little data, I cannot look at a single sound with 4 words normally but what do I do, I make inferences because I employ other words as a data tool for myself. Yes, I still critique the speech as thoroughly as possible, but sometimes it's difficult to make a full assessment with limited data. Additionally, it can be challenging to fully understand the child's difficulties in real-life situations. If I have concerns about apraxia, I consider whether it might be part of a speech sound disorder (SSD) or not, as some authors include it within the SSD category. Therefore, it is especially important to consider coarticulation issues if there are difficulties in this area." (LL)

Figure 2. *Assesment Tools in SSD*



Intervention Approaches Used by Participants for SSD

The participants explained the types of intervention approaches they employed in SSD therapy sessions and the reasons for preferring the modality (Figure 3). They mostly employ the traditional approach and the minimal contrast modality, followed by language-based intervention modalities, core vocabulary, Prompt, Dynamic Temporal and Tactile Cueing (DTTC), behavioral modalities, and maximal opposition modality. Cycles modality, Metaphone therapy, multiple opposition modality, empty set, Kaufman, and motor-based intervention modalities are relatively less employed.

"Apart from this, I use the minimal-maximal opposition approach and the cycle approach in my work. These methods are part of the modalities I employ as needed." (AA)

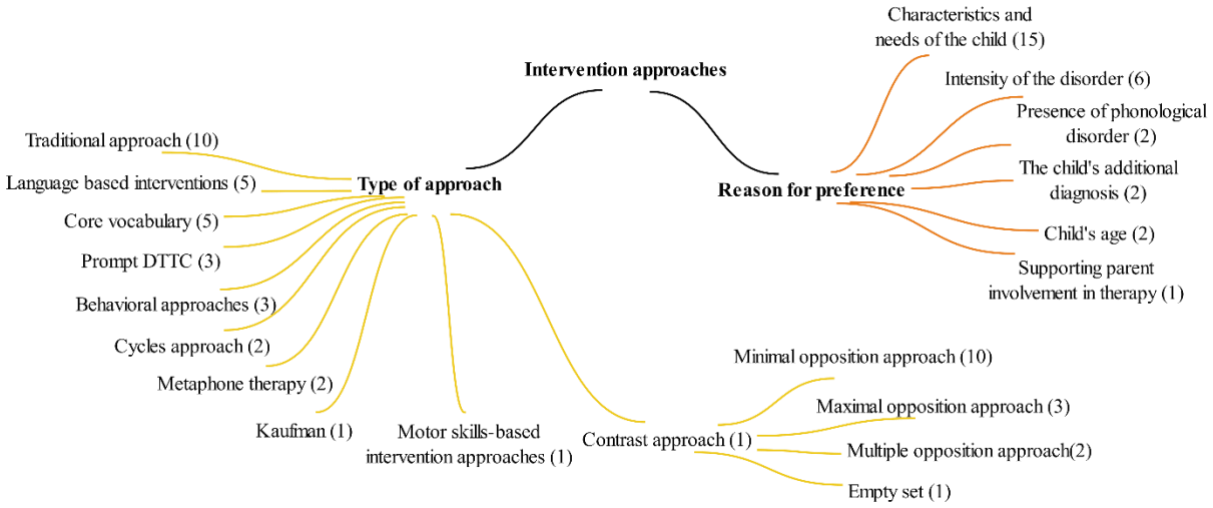
"I usually begin with a core vocabulary approach, especially for children with very inconsistent productions. Once the child can demonstrate some ability to differentiate sounds, based on their sound discrimination processes, I then introduce minimal pairs if their attention allows for it. (NN)

When choosing the modalities, the participants consider the characteristics and needs of the child and the severity of the disorder. The age of the child, the presence of a phonological disorder, the presence/absence of an additional diagnosis, and the familiy cooperation for the therapy are other variables while the therapists decide the modalities.

"I primarily support younger children with SSD using a natural intelligibility approach. This means I focus on stimulating their speech sounds through playful, everyday interactions. I emphasize using words in context during play to enhance their speech. Additionally, I may adjust the intervention modality based on whether the child has any additional diagnoses." (AA)

"Err… Considerations include the child's cognitive level, playing skills, attention level, severity of the disorder, age, and sensory status." (JJ)

Figure 3. *The Intervention Approaches and Reasons Employed in SSD*



The participants expressed their opinions on the diagnostic differentiation in SSD within the framework of those with difficulty in discrimination and recommendations for discrimination (Figure 4). One participant said that the disorders were interrelated, therefore, there would be no difficulty in distinguishing, and the most of the participants said that CAOS was confused. Participants specifically mentioned that SSD was often confused with phonological impairments, hearing problems, and apraxia, and that motor speech disorders and delayed language disorders (DLD) were also frequently mistaken for SSD. Cluttering and resonance problems were among the other disorders considered to be difficult to differentiate. Some participants also mentioned that speech sound disorders were sometimes confused with stuttering, and that phonological disorders were often mistaken for each other.

"What do you mean by being confused? As I said, they are not very independent from each other anyway, there may be structural reasons for speech sound disorder, but it may be functional. Therefore, it can be sensory, it can be caused by different reasons. That is why I do not think it is the right question, there can be no question of confusion." (JJ)

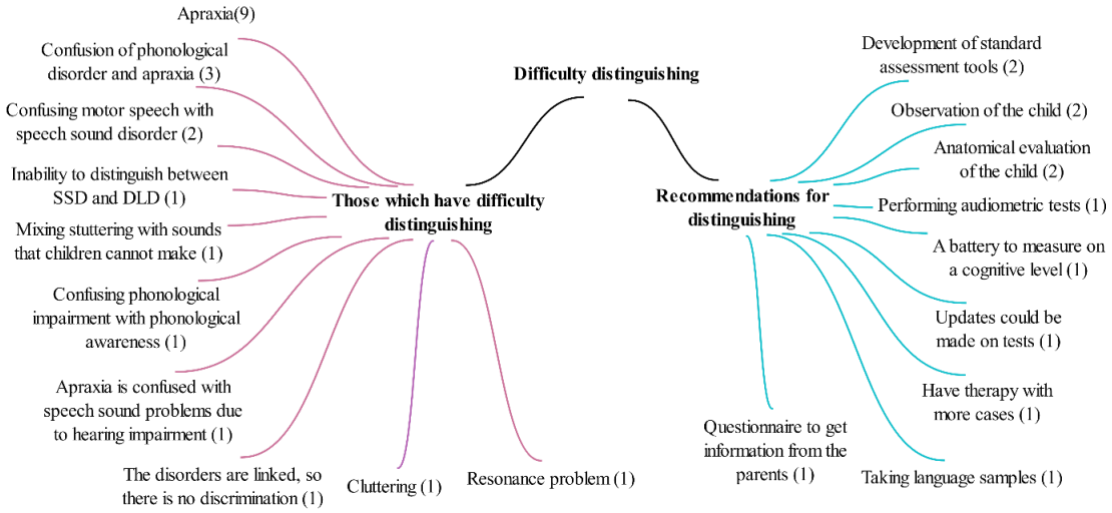
"Usually, anyway, err… apraxia… You know, we usually have something to call it apraxia when we see such inconsistency. Although not apraxia, it can be confused with speech sound disorder. Here … it can be confused with phonological disorder. There is nothing else." (EE)

"Even when the resonance problems are resolved, they may continue. Maybe it is confused like that. I mean, is it caused by SSD or the child cannot produce the sound, you know, there is a motor problem there? But the rest… there may be the next part, is it something caused by resonance, or whether it can be fixed or not." (AA)

In order to address the challenges associated with distinguishing between diagnoses, the participants proposed several recommendations. These include updating existing tests, closely observing children, conducting anatomical evaluations, creating batteries of tests that can assess cognitive abilities, administering audiometric tests, collecting language samples from children, gaining experience with a larger number of cases, and obtaining information from families. Additionally, they emphasized the need for the development of new standardized evaluation tools.

"Perhaps, as I mentioned, a questionnaire for families could be prepared. For example, you might ask: 'Does your child consistently use the same word for a particular item, or do they use different words? Are their productions consistent or inconsistent? If we did not observe them during the first session, how can we distinguish between inconsistent phonological disorder and apraxia? Does the child frequently produce more consonants incorrectly, or are there distortions in vowel sounds? For instance, do they say "paçata" instead of "peçete"? Do they struggle with starting or finishing words, such as "baba"? A small evaluation form like this could be very helpful." (AA)

Figure 4. *Difficulty in diagnostic differentiation and recommendations*



Strategies to Ensure Family Participation

The participants explained their strategies to ensure the participation of the family and to increase the motivation of the family and the client (Figure 5). The most common practice to ensure the participation of the family is to give the family work or homework assignments they can do with their children at home, involve families directly in the session and direct or guide them on how to work with their children. Other strategies include family interviews at the end of sessions and videotaping sessions and sending them to families.

"At the end of the session, I show it to the family, if we have produced a sound or whatever we have worked on. Then, if I have any doubts about the family doing it, for example, I definitely want a video while working at home, and I try to provide them with word lists, picture images, whichever the child needs more." (BB)

"Or families usually say, "Teacher, s/he does not want to do anything at home. S/he does it here, but not at home." When things like this happen, err, I recommend board games that I bought,

err. Or, well… the way I play, well… I recommend it to them. "This is how you can do it; this is how we work" Well… that is how I involve the family." (EE)

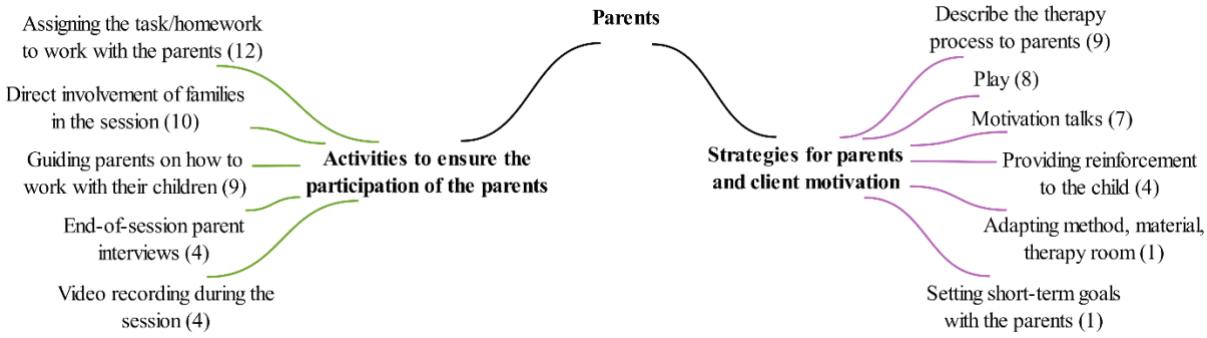
To ensure the motivation of the family and the client, the SLT informs the family about the therapy process by explaining the child's development, continues the sessions by playing games, makes motivational conversations with the family, offers reinforcement to the children, changes the method, material, and therapy room employed in the session in case the child feels bored, and finally sets short-term targets for the child and tries to reach them.

"Sometimes, the process can become long, but we also worked on the same things before, I mean, I tell them the distance we have come from the first step therefore far in terms of motivation. Because yes, you know, we still have not finished. After some time, they may lose their motivation a little. Or is it still not finished? In such cases, I say that this is a longer process, a therapy process, and I try to show them the distance we have come therefore far." (GG)

"The child can feel bored after some time and not want to go on, even in the same speech sound. well... I can try a different method in the game. If the child is accompanied by a phonological awareness problem, I can turn it into a game with him/her..." (DD)

"I think it makes the most sense to set short-term goals. If I feel that the child will have such a long process in the first sessions, if I feel that it may be more difficult for the child to learn, the first step is to present my short-term aims to the family in a more detailed manner. Look, we did this, but that is why we did it. If we are working on a sound like 'A' or 'B,' the goal is not just to practice the sound itself. For instance, when working on the 'B' sound, the primary target is to get the lips together and build up intraoral pressure, rather than just focusing on producing the sound for a long time." (BB)

Figure 5. *Parental Involvement in SSD*



Strategies for Maintaining Therapy Continuity

Some of the participants expressed different practices they used to support their therapy processes (following homework assignments, planning an individual therapy process, assigning homework specific to the child, monitoring the weekly development of the child, supporting children's executive function skills, changing the therapy method, durations, and materials).

"For example, if 45 minutes is too long for the child, I can adjust the duration of the therapy. If the materials used are too boring for the child, I can switch them out, change the therapy approach, or alter any activities, such as the board games used as extras. (LL)

"Firstly, it is crucial to monitor the child's development closely each week; this follow-up is very important. Sometimes, we observe that certain sounds are acquired during the follow-up process itself. Secondly, the homework given must be tailored to the individual child. Not every assignment is suitable for every child. Preparing personalized pictures, visuals, and materials to engage the child and create individualized content is very valuable. This can be considered the second key point." (BB)

Discussion

Evaluation Tools and Diagnostic Differentiation

The findings of the present study showed that SLTs working in Türkiye made use of taking natural language samples and making qualitative observations along with the application of standardized tests such as SST and AAT for the evaluation of SSD. A similar survey conducted with SLTs in the United States reported that SLTs applied a standard single-word test, hearing screening, stimulability test, and verbal motor skill test for the evaluation of SSD (Skahan et al., 2007).

It was founded that the clinicians participating in the study reported having difficulty distinguishing between apraxia and SSD cases. Additionally, some participants expressed that they sometimes have difficulty distinguishing which condition—such as resonance disorders, lisping, or developmental language disorders—dominates in children with SSD. SLTs' attempt to establish the differential diagnosis of SSD depends on their clinical reasoning. All of the evaluation tools measure the problems that ICF has defined as the level of functioning, however, it is argued that this is not considered sufficient to obtain a broad view of the problems experienced by parents and children during daily activities (McLeod, 2004). In parallel, it was also found that some of the participants said that a perceptual evaluation was made with the formal evaluation tools employed in the evaluation of SSD, but more context-appropriate, inclusive, and attention-grabbing evaluations were needed. They also said that there were no standardized tests evaluating oral-motor skills and early literacy skills. In the international literature, it is mentioned that reaching a differential diagnosis is not an easy process for clinicians and that there is a need for “an inclusive and universal classification system to cover the needs of clinicians and researchers” (Waring & Knight, 2013).

Intervention

It was found that the vast majority of SLTs participating in the study considered factors such as the child's needs, family expectations, the severity of the disorder, and any accompanying

conditions when determining interventions for SSD. Additionally, it was noted that the SLTs did not reference any research articles or scientific publications when discussing their interventions for SSD. Some other studies concluded that SLTs employ their experience rather than scientific knowledge in clinical management (Baker & McLeod, 2011a; Brumbaugh & Smit, 2013; Joffe & Pring, 2008). Baker and McLeod reported that this was because of the lack of time to read scientific articles and the lack of sufficient scientific evidence for certain interventions (or combinations) or methods. Also, it was found that many participants mentioned that they applied interventions that they described as "eclectic" by combining several methods. As a result of the studies of Baker and McLeod (2011b) and Joffe and Pring (2008), it was reported that many SLTs combined interventions or methods without any scientific evidence such as a randomized controlled trial. Similarly, none of the SLTs participating in this study mentioned using randomized controlled trials when developing an intervention plan for SSD.

Sizer et al. (2016) mentioned that SLTs must be able to apply combinations of interventions based on their clinical experience. It was also found that the majority of SLTs included in the study reported that they often and primarily made use of the traditional modality in the intervention of SSD. Brumbaugh and Smit (2013) also reported that they concluded that SLTs employed traditional interventions more frequently than other interventions, as a result of the survey they conducted with 2.084 SLTs in the United States (Brumbaugh & Smit, 2013). Consistent with these results, it was revealed that the SLTs participating in this study also commonly utilized traditional approaches for SSD intervention.

Family Involvement

The study found that the SLTs involved families in the management of SSD by directly including them in sessions, conducting family interviews after sessions, and reviewing video recordings of certain parts of the sessions. Similarly, Watts Pappas et al., (2008) reported in their

study conducted in Australia to examine parents' participation in interventions for SSD that 80% of the 277 SLTs reported that parents were always or usually present in intervention sessions. In another recent study, Oliveira et al. (2015) included 88 SLTs working in Portugal and reported that 60% (53 SLTs) of the participants involved parents in their interventions for SSD, 26 (30%) said that this participation occurred frequently, six (7%) said that it sometimes happened, and only one (1%) said that this happened seldom. In another study that was conducted more recently, it was reported that studies showed that parents were frequently involved in the clinical management process (Sugden et al., 2017). Similarly, this research has revealed that SLTs in Türkiye also consider family participation to be one of the most important factors for achieving success in the management of SSD.

It is also reported that it is currently unknown how SLTs train parents to provide intervention for their child's SSD (Sugden et al., 2017) and most SLTs believe that parents must be involved in speech and language therapy interventions for SSD (Keilmann et al., 2004; McLeod & Baker, 2014; Watts Pappas et al., 2008), but none of the relevant studies conducted on clinical applications of SLTs have included the motivations behind using these practices, therefore, these motivations are currently unknown (Sugden et al., 2017). In this study, the most common practices used to ensure parental involvement in the therapy process for children with SSD included assigning tasks or homework for families to complete at home with their children, directly involving families in the therapy sessions, and providing guidance or coaching on how to work with their children. Other strategies involved conducting family interviews at the end of sessions and recording the sessions on video to send to the families. Based on these findings, it is believed that a valuable contribution has been made to addressing this gap noted in the literature.

Challenging Situations in the Therapy Process

When participants discussed the challenges they faced in the SSD therapy process, they identified family involvement as the most difficult step. They explained that this difficulty arises

because children often forget what they have learned in therapy if they do not practice it at home with their families. Another challenge mentioned was the high expectations of families. A recent study also highlighted that ensuring parental involvement in therapy is a challenging situation for SLTs working with pediatric speech and language disorders. It was explained that this challenge may stem from factors such as parents' lack of time, disinterest in participating in service delivery, and personal reasons that hinder their involvement (Gaffney, 2021).

Additionally, SLTs identified several challenging factors, including the child's accompanying conditions, deficiencies in motor development, problematic behaviors, limited attention span, the transfer phase, material selection in therapy planning, lack of prerequisite skills, and resistance to therapy in children who have previously received therapy. Another study also describes a similar challenge, noting that SLTs sometimes adjust their therapeutic approach based on a child's temperament and executive functioning because some children with SSD do not adapt well to certain therapies (Furlong et al., 2018).

Conclusion and Clinical Implications

These findings highlight several implications for the clinical management of SSD. The findings of the study provide insight into the clinical decision-making process of SLTs for children with SSD. The child's individuality and parental involvement in therapy were identified as the most important influences on the clinical decisions of SLTs. It was also found that clinical practices are affected by the characteristics of the practice environment, knowledge, and clinical experience of SLTs. It also appears that most SLTs choose an evaluation and intervention method that is based on the their own experience. However, this practice may not be the best option for clients. Also, our findings show the need for a rapid and easy-to-manage comprehensive differential diagnosis tool to enable SLTs to save time and collect necessary information, even when direct contact with parents/caregivers is not possible.

The findings show that there are no clear guidelines for planning interventions based on children's characteristics. SLTs rely on their own clinical experiences. We believe that urgent studies are needed to determine which interventions (or combinations of interventions) are most effective in SSD for certain diagnoses and specific case groups in Türkiye.

It is considered that it will take time to resolve these problems. In the short term, it is recommended to improve training for speech and language therapy students and SLTs. In this way, it is also considered that SLTs could become well-equipped to take into account all the different aspects of choosing a diagnostic tool and intervention method.

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