

Case Report

Language Development Disorder in Fetal Alcohol Spectrum Disorders (FASD), a Case Study

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Abstract: Prenatal alcohol exposure can cause developmental damage in children. There are different types and ranges of alterations that fall under the name of fetal alcohol spectrum disorders (FASD). Disabilities in learning, cognition, and behavior are observed. Environmental conditions are an influencing factor in this population since they are generally adverse and are either not diagnosed at an early stage or given the appropriate support and approach. We present a case study of a 9-year-old child, in which all the variables affecting his development (FASD diagnosis and socioenvironmental conditions) were observed and analyzed. His early childhood under institutional care, the move to a foster home at the age of 6, and several measures of evaluation from foster care to the present are described. Difficulties in vocabulary, access to vocabulary, morphology, syntax, grammar, oral narrative, pragmatics, speech, and communication were observed, along with cognitive difficulties in memory, perception and executive functioning, social adaptation, learning, and behavior. An early diagnosis and approach enable this population to develop skills in different dimensions to address early adversity despite their neurological and behavioral commitment. Speech-language pathologist services are crucial for the diagnosis and treatment of the language and communication difficulties that characterize this syndrome.

Keywords: fetal alcohol spectrum disorder; language development disorders/diagnosis and assessment; cognition disorders; ADHD; speech-language pathologists

1. Introduction

Prenatal exposure to alcohol affects children's neurodevelopment to different degrees, resulting in a range of disorders known as fetal alcohol spectrum disorders (FASD) (Chudley et al. 2005). This spectrum includes the diagnosis of fetal alcohol syndrome (FAS), partial FAS (pFAS), alcohol-related neurodevelopmental disorder (ARND), and alcohol-related birth defects (ARBD) (May et al. 2014). The four digits in the diagnostic code reflect the magnitude of expression of four key FAS diagnostic features: (1) growth deficiency; (2) the FAS facial phenotype; (3) brain damage/dysfunction; and (4) gestational alcohol exposure (Astley 2000). Additionally, a set of three clinical characteristics is observed: intra- and extrauterine growth delay, facial dysmorphism, and morphofunctional neurodevelopmental disorders (Evrard 2010). It is also stated that alcohol exposure is associated with alterations in cognitive functioning, executive functioning, psychomotor development, behavior, learning new verbal information, visuospatial tasks, fine motor skills, nonverbal learning, and academic performance (Fernández-Mayoralas and Fernández-Jaén 2011; Kuehn et al. 2012; Mattson et al. 2001).

Case studies of children with FAS have been conducted confirming limitations to development and cognitive performance, in neuropsychomotor development, adaptive behavior, disruptions in daily life activities, and difficulties in coping with social environments (Cusin et al. 2010; Timler et al. 2005). It has also been proposed that neuropsychomotor delay is an important risk factor, because children lose sensory-motor opportunities to expand their knowledge, which generates alterations in perceptual, cognitive, linguistic, and social areas (Cusin et al. 2010).

In FASD, comorbid and psychiatric development and conditions are commonly observed. Children with FASD are also commonly diagnosed with attention-deficit hyperactivity disorder (ADHD) (O'Malley and Nanson 2002). They are often misdiagnosed as having an oppositional defiant disorder. There is agreement among caregivers and teachers that children with prenatal exposure to alcohol exhibit behaviors associated with ADHD and, in particular, are more restless, impulsive, and less able to sustain attention (Price et al. 2017). Children with FASD and ADHD are often quite talkative, and their lack of cognitive understanding coupled with inappropriate answers can frequently be misdiagnosed as an oppositional defiant disorder (O'Malley and Nanson 2002). Other common features are linked to their difficulties in working memory and executive functioning that affect their mathematical skills due to faulty deductive reasoning (O'Malley and Nanson 2002). Language disorders frequently occur in children with ADHD, and the degree to which ADHD interacts with language difficulties exacerbates these (Sciberras et al. 2014). Complex learning disability in children with FASD can include an underdiagnosed mixed receptive-expressive language disorder that affects their social cognition and social communication (Coggins et al. 1998).

Language-related issues have also been observed, such as difficulties in the use of oral language as a communicative resource, speech intelligibility, oral language comprehension, denomination, recognition and execution of simple instructions, alterations in semantics, grammar, syntax, memory, and use of language (Garcia et al. 2007; Coggins et al. 2007; Becker et al. 1990; Wyper and Rasmussen 2011). Speech disorders have also been observed, in some cases with errors in certain consonants, while other subjects show marked difficulties in production resulting in low speech intelligibility (Church et al. 1997). Poor performance in language development has also been found, characterized by restricted use of typical structural elements of the story narration scheme with lower levels of coherence and reduced vocabulary (Ganthous et al. 2017). When examining the relationship between language and general cognitive functioning, some studies suggest that children with prenatal alcohol exposure are likely to show difficulties in both receptive and expressive language, and that language skills are likely to be coherent with general intellectual functioning (McGee et al. 2009; Becker et al. 1990; Mattson et al. 2001). Studies of overall cognitive ability in FAS children typically report average IQ scores in the borderline range of functioning (i.e., in the low 70s) and have evaluated a broad range of cognitive functioning areas in children with FAS, including language skills, nonverbal learning, and academic performance. In general, alcohol-exposed children both with and without FAS show significant impairments in all neuropsychological areas (Mattson et al. 2001). Results also suggest that language develops normally in children with FAS, although at a slower rate than expected based on chronological age, and suggest that the language skills of children with heavy prenatal alcohol exposure are commensurate with estimates of general intellectual functioning (McGee et al. 2009).

The development of these children is further affected by environmental contextual factors that, as a rule, have a negative impact, depriving them of suitable assistance in orphanages to maximize their skills (Fagerlund et al. 2012; Popova et al. 2016). Outpatient treatment providers have identified some mental health disorders that commonly co-occur with FASD, principally attention deficit/hyperactivity disorder, oppositional defiant disorder, learning disorder, reactive attachment disorder, and conduct disorder (Brown and Harr 2018). These comorbidities seriously compromise language and social communication skills (Coggins et al. 2007; Wyper and Rasmussen 2011). Language and communication difficulties affect these children's interpersonal relationships, potentially leading to peer rejection and thus influencing different development contexts (McGee et al. 2009).

In general, children with FASD present a complex clinical profile partly due to concurrent conditions that have a significant impact on learning, language development, and social communication.

Hence, from a speech-language pathologist (SLP) perspective, the purpose in this work is to present the case study of a child diagnosed with FAS in which both clinical comorbidity and environmental adversity characteristics are observed. We aim to determine whether our participant's language difficulties are consistent with his general cognitive functioning.

An exhaustive case description of the characteristics present in FAS patients will help to understand this disorder and allow the professionals who work with such patients to design intervention methods specifically adapted to their problems.

2. Methods

This case study is part of the preliminary data for a doctoral research whose protocol was approved by the Research Ethics Committee of the Autonomous University of Madrid (CEI-88-1663). The family of the subject of this study gave their informed consent for inclusion before participating in the study. The study was conducted in accordance with the Declaration of Helsinki ([World Medical Association 2013](#)).

We describe our subject's developmental, behavioral, and environmental characteristics that are part of the clinical picture of FAS, and that are relevant to understanding the difficulties inherent in these children. From the beginning of schooling at 6 years of age up to the last evaluation at 8 years and 9 months, several evaluations were made of his linguistic and cognitive development. The results of these evaluations are shown in the order in which they were conducted.

2.1. Participant Description

The participant in this study is a boy who is currently 9 years and 8 months old and exhibits key clinical features of FASD, physical characteristics that include facial anomalies, growth deficiency, cognitive and behavioral features, and maternal risk for prenatal alcohol exposure ([May et al. 2014](#)). He was born in Chile and was diagnosed early with FAS in the center where he was institutionalized for the first years of his life. He is currently studying third grade of primary education in a public school where, because of his special educational needs, he receives significant support through major curricular adjustments. We will refer to him hereinafter as Jaime.

The clinical and phenotypical characteristics of children with FASD are also observed in Jaime ([Campo and Jones 2016](#); [Moore et al. 2007](#); [Chudley et al. 2005](#)). These include (1) morphological malformations: Jaime's palpebral fissure is reduced, there is absence of nasolabial fold, a thin upper lip, the nasal septum is flattened, the implantation of the auricular pavilion is low, and there is clinodactyly; (2) growth retardation: according to healthy child standards, Jaime is two deviations below the norm both in weight and height, and although it is reported that he eats well, his growth rate is low; (3) damage to the central nervous system, mainly observed in learning, cognitive, linguistic, and behavioral disabilities: neurological damage in children with FASD depends on the time of exposure to alcohol during pregnancy, since there are crucial periods for the development of each system ([Paintner et al. 2012](#)). Additionally, Jaime arrived at the foster home with an established ADHD diagnosis (with impulsiveness), and therefore already in pharmacological treatment. An ADHD diagnosis is often associated with reading-learning disorders and delays in language and motor development ([Mariño et al. 2018](#)); ADHD and FASD are related to problems in executive function involving speech organization ([Peadon and Elliott 2010](#)).

Currently, Jaime presents behavioral and adaptive difficulties and has received psychiatric treatment from the age of 6 with pharmacological support. The clinical presentation of ADHD in FASD is commonly seen as a comorbid condition ([O'Malley and Nanson 2002](#); [Wozniak et al. 2019](#)); there are features in common between FASD and ADHD that include difficulties involving inhibition, increased impulsivity, executive functioning, psychiatric disorders, organization, hyperactivity, adaptive function, verbal recall, and reading ([Mattson et al. 2019](#)). These difficulties may also become concurrent with

language disorders (Sciberras et al. 2014; Curtis et al. 2018). Such comorbidity is one of the challenges facing speech-language pathologists (ASHA 2008; Sciberras et al. 2014), although it could be a positive aspect given the greater access to speech and language services available to people with ADHD (Redmonda 2016).

2.2. Developmental History

Jaime lives in a foster home, so the family has been unable to provide much information regarding his early development. Jaime was born at 38 months gestation, and an intrauterine development delay was recorded. Delivery was normal. His length at birth was 47 cm, weight 2620 g, and APGAR score 6/7. At delivery, Jaime's birth mother refused to take care of her son, and the court decided that Corporation for Infant Nutrition (*Corporación para la Nutrición Infantil*, CONIN) would take care of him. Reports available to CONIN indicated: recurrent bronchial syndrome, fetal alcohol syndrome, gastroesophageal reflux, psychomotor development delay, short size, and dysmorphic syndrome. Jaime remained in this institution for three years, after which he was referred to an orphanage where he stayed for another three years before being placed in a foster home.

Jaime's assessment data are limited to his foster home period, since few previous data can be provided.

When Jaime arrived at his foster home, the family reported that according to his language and learning, his speech was sometimes difficult to understand because he did not properly organize the words within his sentences. The verb tenses were wrong, his vocabulary was very basic, and he used few words in his speech. He only understood simple instructions in relation to daily life activities. He was unable to join the games of children his age, so he preferred to play with children younger than himself. He had not acquired reading, and when an adult read, he only retained one or two words and could neither understand nor remember what was read. Similarly, he was unable to narrate events, regardless of whether they took place the same day or not. When telling of an event he had experienced, he did not organize the words properly, with the result that the account often seemed implausible, and he was accused of altering the facts and being a liar. He quickly lost attention in conversations, and when taking part in a game, he wanted to change activity after a few minutes because he did not understand the instructions or forgot them quickly. Regarding his behavior, he presented several situations of impulsiveness and aggressiveness. He also exhibited certain remarkable behaviors, for instance, he would steal food from the kitchen and hide under his bed to eat it. When asked to go and wash his hands before a meal, he would hold his plate close and refuse to go and wash because, he claimed, the others wanted to take his food away from him. When they took him out to dinner at a restaurant, he would greet and embrace the waiters or other people he did not know, which was dangerous because he could be led away by any stranger. Shopping at a supermarket, he was always overexcited, would not heed orders, and threw tantrums in public. All these behaviors were displayed constantly during the first year with his foster family. However, the family has handled Jaime's behavioral difficulties very well, and this is an area in which satisfactory progress has been made. The most pronounced problem is his attentional difficulties, which are observed in his constant disconnection from activities and delayed or no resolution of tasks, both at home and at school. These behaviors occur frequently in children with FASD (Olswang et al. 2010).

3. Assessment Results

Upon arrival at his foster home at the age of 6, he was enrolled in school but had to start his education at the preschool level because of his limited skills. He received psychotherapy and speech therapy support. At the age of 6 years and 6 months, he was assessed at school by a SLP and a psychologist, the results of which are described hereunder.

According to the SLP assessment report, this was carried out on the basis of a qualitative checklist of linguistic tasks, since Jaime's attentional difficulties rendered him unable to cope with the assessment conditions for applying formal tests. The checklist was based on normal language and communication development in children (Owens 2003; Acosta et al. 2002). The tasks were related to the performance expected of a 6-year-old child in each of the language levels (form, content, and use) and in reception and expression of language. Regarding speech, language, and communication, difficulties involved verbal auditory memory, metaphonological skills, management of basic vocabulary and semantic categorization, and morphological difficulties, specifically with pronouns and verb tenses. Jaime seemed to properly understand simple instructions, verbal and visual incongruences, and gender and number markers. Regarding language production, the limitations related to active vocabulary, lexical fluency, definition, and structuring simple sentences. Reports also showed cohesion and coherence difficulties in relation to narratives. Regarding communicative abilities, adequate communicative intention, eye contact, facial expression, and conversational skills were observed. Difficulty in reading was also observed, presenting only recognition of letters and their sounds. All difficulties in comprehension and expression processes lead to a developmental language disorder diagnosis.

Raven's Colored Progressive Matrices (Raven 1998) and the Rey Complex Figure (Figure A) (Rey 1997) were used for the psychological assessment. The results of the Raven Test corresponded to the range V, that is, intellectually deficient. As for Rey's complex figure test, Jaime performed poorly, showing very low development, specifically in perceptive activity, attention, and concentration during the copying phase. Visual working memory was seriously impaired, and poor performance results were obtained in the manipulation of information and in the maintenance and use of this information with specific purposes. In general, difficulties were highlighted regarding attentional periods, perceptive activity, and visual working memory, in relation to his chronological age and reference group.

At the age of 7 years and 11 months, the Wechsler Intelligence Scale for Children–III (WISC-III) (Ramirez and Rosas 2007) was applied. The scores were (M = 100; SD = 15) Verbal IQ = 66; Performance IQ = 89. Jaime's record presents significant differences between both scales, showing a discrepancy of 23 points, with a better achievement in the performance scale. Owing to this discrepancy, it was not possible to interpret the total score. His greatest difficulties involved verbal comprehension index, processing speed, and distractibility.

At the age of 8 years and 9 months, the Peabody Picture Vocabulary Test (PPVT-III) (Dunn et al. 2010), Clinical Evaluation of Language Fundamentals-Fifth Edition (CELF-5) (Wiig et al. 2018) and Objective and Criterial Language Test (*Batería del Lenguaje Objetiva y Criterial BLOC*) (Puyuelo et al. 2000) were applied. Results are shown in Table 1. In addition, to elicit oral narrative, the story book *Frog, where are you?* (Mayer 1969) was used. The narration was recorded and fully transcribed for further analysis of aspects of the narrative, including information referring to narrative elements such as plotline, theme references, and misadventure (Miles and Chapman 2002), and the mean length of utterance (MLU) (Crespo et al. 2011; Rondal and Ling 2000). Results are shown in Table 2. Finally, Prutting and Kirchner's pragmatic protocol (Prutting and Kirchner 1987) was applied. Results are shown in Table 3.

Table 1. Assessment measures at age 8 years and 9 months.

Test	Standard/Scaled Score	Age Equivalent
PEABODY PPVT-III	IQ 55 Percentile 0.1	5:7
CELF-5		
Scaled Scores	(M = 10; SD = 3)	
Sentence Comprehension	6	5:10
Linguistic concepts	3	3:2
Word Structure	2	<3:0
Word Classes	6	6:2
Following Directions	2	4:6
Formulated Sentences	1	5:6
Recalling Sentences	2	3:5
Understanding Spoken Paragraphs	1	
Pragmatics Profile	6	<3:0
Composite Scores	(M = 100; SD = 15)	
Core Language score (CLS)	57	
Receptive Language Index score (RLI)	69	
Expressive Language Index score (ELI)	50	
Language Content Index score (LCI)	63	
Language Structure Index score (LSI)	59	
BLOC		
Morphology	Criterion Score = 22% Percentile < 1	
Syntax	Criterion Score = 34% Percentile = 28	
Semantic	Criterion Score = 64% Percentile = 14	
Pragmatic	Criterion Score = 49% Percentile = 34	

Table 2. Narrative measures.

Specific Story Events	Scores
Plot Line Components	3/6
Theme references	3/9
Misadventures	
Boy's	3/3
Dog's	3/3
MLU	6.7

Table 3. Summary of pragmatic protocol.

Communicative Act	Appropriate	Inappropriate	No Opportunity to Observe
Verbal Aspects			
Speech Acts		X	
Topic		X	
Turn taking		X	
Lexical selection/use across speech acts		X	
Stylistic variations		X	
Paralinguistic aspects			
Intelligibility and prosodies	X		
Nonverbal aspects			
Kinesics and proxemics		X	

According to the PPVT-III, he achieved scores in the range of the 0.1 percentile, age equivalent of 5 years and 7 months, thus evidencing both for receptive vocabulary and verbal aptitude an IQ of 55.

Jaime's individual scores in the CELF-5 test for receptive language, expressive language, language content and language structure were below average. More specifically, they were in a very low/severe range. The equivalent age was in the 3–6 years range, although for word structure and pragmatic profile, the age equivalent was under 3 years.

As for the BLOC test, Jaime's competence was very low throughout, showing real needs in these aspects.

In the narrative speech task (Table 2), the audio-recorded speech sample was 10 min in duration. It was observed that Jaime did not follow the grammar and structure of the stories and focused on merely describing the plates in which he managed to add the actions that were observed. He did not refer to the scenarios in which these actions were performed, although he managed to maintain reference to the characters. There was no proper continuity and maintenance of the theme and the plot of the story, so he could not make the connection through the complications presented to the character and, since he did not set a plot, this was not resolved either. Throughout the narrative, he embedded clauses of very basic complexity to give a sequenced account of the facts, but with little handling of semantic, grammatical, and syntactic elements of cohesion, resorting to the use of "and" and "then" to link each sentence or clause and with very low lexical variability.

The results of Prutting and Kirchner's pragmatic protocol (Table 3, summary of pragmatic protocol) show that Jaime maintains eye contact within the communicative interactions, although sometimes his connection with the activity is minimal due to his comprehension difficulties. He experiences problems in keeping conversational turns. He is able to maintain the conversational topic when it is of interest to him but quickly loses focus. He has difficulty in identifying conversational breaks and repairing them. In relation to fluency of speech, since he has difficulties in accessing the lexicon, he generates repetitions of the last syllable of the word to anchor the next word. He presents difficulties at a proxemic level, displaying remarkable motor restlessness and hand movements when exposed to verbal demands. Again, the complexity of his verbal interventions is low; he provides little information and it is redundant, which has consequences for developing adequate social competence.

4. Discussion

The purpose of this paper was twofold: on the one hand, to show, from clinical observations at different moments in time, the difficulties in all components of language, communication, and cognition that can be found in a clinical picture of FASD, and, on the other hand, to show the contextual and behavioral factors that influence the adequate development and social inclusion of these children.

Within the spectrum of FASD profiles, Jaime presents FAS, which is the most severe form (Bastons-Compta et al. 2016). Children with FAS exhibit deficits that include language disorder, attention deficit, learning difficulties, and impaired motor skills (Wilczyński and Jabłońska 2016; Williams and Smith 2015). Looking at Jaime's developmental history prior to arrival at his foster home, several characteristics of early adversity that are common among children with FASD can be identified. What usually happens with children with FASD is their placement in foster care or adoption (Paintner et al. 2012), as was the case with Jaime. This is how we find the abandonment to which Jaime was exposed from the moment of birth, whose institutionalization led to loss of emotional experiences in the first years of his life. In this sense, according to the foster family's observations, since the beginning of foster care, the child displayed attachment difficulties manifested in his anxiety of being abandoned again, seeking affection from different people regardless of whether they were known or not, and exhibiting substantial irritability. Such placement and re-entry into foster care may cause young children to experience difficulties in sleeping, feeding, fear and irritability; older children may show aggression, impulsiveness, and sexualized behavior (Wang et al. 2011). In Jaime's case, many or all of these behaviors have been observed, some gradually receding while others remain.

Jaime's neurodevelopment difficulties are observed in short attention spans, perceptive activity, and visual work memory, which are considerably diminished in relation to his chronological age and affecting his intellectual performance. Research conducted with FASD children has found consistency in the presence of difficulties in abstract reasoning, visual-spatial ability, problems in executive functioning that include planning, conceptual set shifting, affective set shifting, verbal encoding, verbal and nonverbal fluency, concept formation, error correction, arithmetic, fluency, and problem solving and planning (Kodituwakku 2009; Chudley et al. 2005; Mattson et al. 2019). All these aspects have been observed in our participant and are aspects addressed by SLP (ASHA 2008).

There is evidence of comorbidity between FASD and adverse environmental conditions such as negative care environments or multiple household locations in the early years, which alter children's ability to conceptualize and make sense of their social world (Coggins et al. 2007; AlHammadi 2017). Children with prenatal alcohol exposure and maltreatment are more likely to have deficits in speech and language, memory, attention, intelligence, and behavioral difficulties, and likely to have more severe deficits in these areas (Mukherjee et al. 2019). This has been the case with our participant. From a depressed and not very affective environment, he moved to an environment that expressly focused on his problems, and the improvement in his social and communicative relations and behavior have been remarkable and have allowed him to be competent in different contexts of daily life and to enter a regular education school with integrative support for his special needs.

Focusing on the development of Jaime's linguistic and communicative skills, the first SLP evaluation showed a delay in the development of all language components. Many FASD children tend to have delays in language acquisition and comprehension, vocabulary acquisition and poor semantic skills (Wyper and Rasmussen 2011; Coggins et al. 2007; Church and Kaltenbach 1997; Becker et al. 1990) and significant impairment of speech (Wilczyński and Jabłońska 2016). In Jaime, difficulties were observed in his syntactic and discursive abilities that affected his communication skills. His speech was barely understandable due to grammatical errors; these poor grammatical abilities in narrative productions observed in children with FAS (Church and Kaltenbach 1997) constitute a marker for the presence of FASD (Mattson et al. 2019; Thorne 2017).

During the 3 years spent with his foster family and with the speech therapy support provided, Jaime acquired both active and passive vocabulary, allowing him to increase his lexical diversity, use more grammatical elements, and improve his syntactic structures, description, and narrative skills. This, in turn, has allowed Jaime to be more functional in communicative exchanges and in daily life activities. He follows basic orders with a maximum of two instructions and low syntactic complexity. Although there was no formal assessment of reading, Jaime has advanced in this ability, and currently reads short sentences and very simple short paragraphs. Nevertheless, his reading is slow, he has difficulties reading aloud with a correct expression, and does not understand what he has just read. This is an area where he needs a lot of support (Bertrand 2009). The understanding of pragmatic and social rules linked to his progression in adaptive skills have allowed Jaime to become functionally involved in different development contexts.

However, Jaime continues to show language alterations as observed in the last SLP evaluation. Jaime's social communication skills were also affected, with his age peers and adults alike. Children with FASD have difficulties providing sufficient information to their communicative peers in both narrative and conversational tasks (Coggins et al. 1998). In Jaime's case, he relates better to younger children; he cannot follow the games of children his own age, so he isolates himself and seeks to play with younger children in games that are simpler.

In addition, children with FASD often do not use their language to adequately describe what others may think or know about a situation. They show poor cause and effect reasoning and also seem unaware of the consequences of their actions (Streissguth et al. 1996), showing abnormal childhood socialization processes, and abnormalities in social learning processes throughout their lifespan (Kelly et al. 2000). Some studies suggest that language develops normally in children with FAS, although at a slower rate than expected based on chronological age. According to these studies, deficits exist in the areas of

language production and comprehension, and comprehension appears to be more deeply affected; furthermore, the language skills of children with prenatal alcohol exposure are proportional to estimates of overall intellectual functioning (Coriale et al. 2013; McGee et al. 2009). However, Jaime's results are not in line with this characterization. Although progress in Jaime's language and communication skills was noted through the 3 years in his foster home, when analyzing the latest tests applied, he presents a language disorder both in comprehension and production that limits his discourse and communication skills and does not indicate a mere delay. We suggest, from what was observed in Jaime's clinical and environmental characteristics, that the language and communication difficulties in FAS children are greater than estimates of their general cognitive functioning. This answers our research question and corroborates that within FASD, FAS children display a more complex array of difficulties, calling for more specific handling of both assessment and intervention processes.

During this period of fostering, the family observed that Jaime's linguistic and communicative skills improved, as well as his behavior and adaptation to his surroundings; however, cognitive, learning, and comprehension difficulties prevent him from progressing according to the requirements of the curriculum for his age or for the level, two years below his chronological age, in which he is placed. It is common to identify significant academic, adaptive, and behavioral difficulties in these children, both at home and at school (Jirikowic et al. 2008). Nevertheless, thanks to family and school support and to continuous speech therapy, Jaime's educational and social inclusion has been functional and satisfactory.

5. Conclusions

FASD is a condition that functionally affects the patient as the social, adaptive, and cognitive dimensions are compromised. Its low prevalence and complex diagnosis leads to assessment difficulties (Brown and Harr 2018), language assessment becoming especially complicated. In the field of speech therapy, in particular, there is a lack of tools that would enable the effective detection of this disorder allowing early intervention through effectively implementing language learning and communication techniques from the outset.

Children with FASD, as we have stated, present, on the one hand, risks from prenatal exposure to alcohol and, on the other hand, the negative effects that frequently concur with adverse development environments (Coggins et al. 2007; Bertrand 2009). We have described the specific case of Jaime to show how these factors converge and negatively affect the development of language and communication. The results corroborate the data obtained in other studies with children exposed to alcohol during pregnancy. For children presenting complex clinical profiles that include language, cognition, behavioral, and socialization difficulties, it is necessary that interdisciplinary diagnostic teams should include speech-language pathologists who play an important role in the early identification and intervention of the wide range of neurodevelopmental disorders, including those associated with FASD (Thorne 2017). Due to the multiple deficits presented by this clinical picture, we suggest a comprehensive assessment of language and communication skills. In addition to a quantitative evaluation through the application of standardized tests, clinicians should consider more inclusive and dynamic tasks in their evaluations, in natural environments, such as role plays, narrative tasks, table games, and observation of peer interactions.

In the present study, we provided SLP and clinicians with a description of this complex clinical profile to facilitate their understanding of how these conditions coexist, negatively influencing the development of language, communication, and cognition. Further studies are necessary to identify which types of intervention generate better results in the approach to language and communication disorders in FASD, in order to generate specific treatments for this clinical picture.

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