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Original Research

The Impact of COVID-19 on Children with Language Developmental Difficulties

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Abstract: Children with Delayed Language Onset (DLO) and Developmental Language Disorder (DLD) face challenges in terms of educational inclusion and language development. The COVID-19 pandemic and preventive measures have further exacerbated difficulties in the oral language development of these children, affecting their equal opportunities in the regular classroom. This study aims to (1) assess whether children with DLO and DLD are experiencing increased difficulties during the pandemic compared to before, and (2) understand the perspectives of families and speech therapists regarding the impact of COVID-19 on children's language development and its consideration in the teaching-learning process. The study adopts a descriptive comparative methodology, employing mixed data collection through quantitative language tests and qualitative questionnaires. The quantitative results indicate differences in oral language abilities before and after the pandemic, with a notable increase in articulation difficulties, although these differences are not statistically significant. This finding aligns with the views of speech therapists and families who highlight the phonetic-phonological dimension as one of the most affected. Families and speech therapists also note that the use of masks and reduced opportunities for peer interaction hinder the improvement of these children and their educational inclusion. The study concludes that (a) there are no significant differences in language between the two groups, (b) families identify masks and limited social interaction as key limitations, and (c) conducting a prevalence study in the DLO and DLD population would support the implementation of Universal Design for Learning principles in educational settings.

Keywords: *Spoken Language, Language Development, COVID-19, Childhood, Language Impairment*

Introduction

There is no doubt that COVID-19 has been accompanied by setbacks and educational difficulties in children's development (Hincapié, López-Boo, and Rubio-Codina 2020). In general, children aged three to five have experienced stagnation in cognitive and language processes during this period. Confinement has prevented them from attending school regularly, leading to emotional and developmental consequences related to increased social isolation (Cifuentes-Faura 2020). In some cases, they have had little stimulation from their families and, in other cases, many of these children are sedentary, causing difficulties in their psychomotor skills (Cabrera-Vintimilla, Cale-Lituma, and Ullauri-Ullauri 2022). A

longitudinal study evaluating children from birth to 24 months during the lockdown period found no clear correlation between the duration of the pandemic and language development challenges (Sperber et al. 2023). Nonetheless, it warrants acknowledgment that children below 12 months of age are in the prelinguistic stage (Fernández-Martín, Arce-Calvo, and Moreno-Molina 2014), and language acquisition typically does not emerge until 18 months of age (Torres 2003). Determining the onset of verbal communication is challenging (Anaya-Reig and Calvo 2019); however, at 24 months, children typically comprehend significantly more than they express, as this age marks a stage where children have not yet fully developed their linguistic potential (Bosch 1984). Thus, it is not unusual for the study by Sperber et al. (2023) not to identify difficulties at this age; however, such challenges are indeed evident in older children (Cabrera-Grosso and Figari 2021). Additionally, a study conducted on children with normotypic language development before and after the pandemic has determined that those who experienced COVID-19 restrictions exhibit poorer language skills, particularly in morphological awareness (Nevo 2023).

The Spanish press has echoed these difficulties and families are now more concerned about their children's language development (Ponce 2022; El Mundo 2022); as some news reports have emphasised that speech therapy consultations are increasing due to the use of masks (Diario de Ávila 2022). Furthermore, the president of the Association of Speech Therapists of the Principality of Asturias (Spain) has stated in some media that there is an increase in delays in speech acquisition, as she explains that interacting with others is very important for language acquisition (Gutiérrez 2022).

It is clear that this period has been difficult for all children in general, but there is a group of children who have also had special difficulties, such as children with autism spectrum disorder (Amorim et al. 2020), with Down syndrome (Jiménez et al. 2021, Paz-Maldonado 2021) or with intellectual disabilities (García 2022; Plena Inclusión State Education Team 2020). However, no analysis of how these pandemic years have affected children with Delayed Language Onset (DLO) and Developmental Language Disorder (DLD) has been found in the scientific literature, although it seems that possible delays in language and motor development resulting from the deprivation of social interaction and the closure of schools have increased (Viola and Nunes 2021). Additionally, it is known that children with language difficulties who were previously socially disadvantaged have experienced a more pronounced language delay after COVID-19 than other children (Weyers and Rigó 2023). An analysis of this situation is considered necessary, as it is a current issue commented on in the media (Diario de Ávila 2022; El Mundo 2022; Gutiérrez 2022; Ponce 2022), but there is no scientific evidence on this aspect. And all these changes brought about by COVID-19 may have been an aggravating factor in their school situation. And they may have affected their educational inclusion (Ainscow, Booth, and Dyson 2006). According to Moran-Alvarado, Vera-Miranda, and Morán-Franco (2017), it should be taken into account that children with language impairment are often children with special educational needs. Therefore, it is necessary to adjust their access to learning with the

use of available resources. It is also necessary to promote the educational attention of specialists who guide early detection, prevention, and specialized intervention such as speech therapists, counselors, or therapists in general. Likewise, it is necessary to be aware of the difficulties that may affect the proper functioning of the classroom with their peers - in relation to language and to design educational proposals adapted to their needs—thus favoring the principles of Universal Design for Learning established by the current Education Law in Spain (Organic Law 3/2020 of 29 December 2020).

Delayed Language Onset (DLO) and Developmental Language Disorder (DLD)

In recent years there has been a major change in the terminology used to designate the group of children with persistent language difficulties, both children with Speech Language Impairment (SLI) and children with Speech Language Disorder (SLD). In the Delphi consensus, it was accepted to change the well-known Specific Language Impairment (SLI) to Developmental Language Disorder (DLD), which has been widely accepted (Bishop 2017; Bishop et al. 2016) since, in addition to their language difficulties, they also show negative emotional manifestations (Ibáñez-Rodríguez et al. 2021) and difficulties in attention and memory (Ahufinger et al. 2021). The term DLO has also undergone changes; it was previously referred to as language delay, although the diagnosis of DLO is not included in the DSM-5 or ICD-11, even so, it is a widely used term (Gallardo-Martínez 2017).

Children with DLO and DLD have some similarities between them, such as slower development and a late onset of language, with both comprehension and expression being affected, with the first words appearing a year later than usual in many cases, as well as having a basic development of syntax and morphology, and although their speech is affected it is not their main difficulty, as they have other language difficulties (Acosta, Moreno, and Axpe 2012; Bahamonde, Serrat, and Vilà 2021; Ellis 2007; Serra-Raventós 2002). Some differences mentioned by Barrachina et al. (2014) are: the nature of the disorder, as DLO is based on a chronological delay while DLD is based on a persistent intrinsic alteration; the degree of affectation, as DLO is milder; the evolution, as DLO is transitory and DLD is persistent; and in the learning of literacy, as in DLO there is little repercussion, but in DLD there are difficulties. Even so, in this article children with DLO and DLD will be treated as a single group, since both have difficulties in their language development (Acosta, Moreno, and Axpe 2012; Bahamonde, Serrat, and Vilà 2021; Ellis 2007; Serra-Raventós 2002).

It is believed that COVID-19 have generated an increase in speech therapy consultations in children between 1 and 4 years old (Cabrera-Grosso and Figari 2021), to which Charney, Camarata, and Chern (2020) explain that the use of masks has been a handicap for children with DLO and DLD, due to the obstacle of not being able to observe facial expressions and not having visual labiofacial support, which makes it difficult for them to get feedback on their interlocutor's speech. In addition, they would have fewer opportunities for interaction

with other children due to the closure of public parks and schools. This could be the cause of some later difficulties, as family and social interaction is known to be a protective factor against such difficulties (Sansavini et al. 2021). Knowing that, it is very important to incorporate families and to take into account their mental health, their wishes, and the interaction of families with children in order to use them in therapy and thus achieve the intended goals (Ozyurt and Elikucuk 2017, Valeria-Pozo et al. 2020).

This need to include families in therapy has been known since before the advent of COVID-19, but research by Cantiani et al. (2021) has confirmed the negative impact of seclusion on the emotional and behavioral profiles of infant-aged children, especially in the case of children with DLO and DLD aged 2 to 6 years due to pre-existing emotional factors, and found that families were doing a very important job with these children during this period. However, there are no previous studies that explain the perspectives of families on whether their child's language has been worsened by the onset of the pandemic. The study by Yafie, Giavarini, and Maulidia (2020) details a series of actions that families could take during the COVID-19 crisis to stimulate children with DLO such as: taking into account physical growth and the need for these children to make mouth movements, considering crying as part of communication, inviting children to communicate at any time with correct words and phrases, giving positive feedback at each stage of their growth, using different methodologies to stimulate the development of their language, consulting with professionals when they have doubts about how to act. Family interaction and work is very important in language intervention with these children (Falkus et al. 2016). It is known that children who did not have intervention during the COVID-19 confinement period had worse physiological speech development than those who did. In addition, their families experienced a greater sense of isolation and anxiety about their children might face in the future (Hackenberg et al. 2021). However, it is not known how some of the restrictions derived from COVID-19 may interfere with language development of children with DLO and DLD, which is the overarching aim of the present study. Specifically, the study aims to achieve the following objectives: (1) to compare whether children with DLO and DLD exhibit greater difficulties in 2021-2022 compared to before the pandemic (2018–2019 and 2019–2020), and (2) to explore the perspectives of families and speech-language pathologists regarding the increased challenges faced by children with DLO and DLD as a result of the COVID-19.

Method

The comparative descriptive method, based on Abreu (2014), is employed in this study to describe and compare the language of children with DLO and DLD. In this approach, the aim is to understand the linguistic characteristics of these children and analyze potential causes of the observed differences between the two groups under study. It is noteworthy that the study compares two groups of children belonging to two different moments: one before

the COVID-19 pandemic (2018–2019 and 2019–2020) and another during the pandemic (2021–2022). To achieve these objectives, a mixed data collection methodology is employed (Kimmons 2022). This involves the use of both quantitative language tests and qualitative questionnaires. Quantitative tests are utilized to objectively assess the language development of the children, while qualitative questionnaires are used to gather the perceptions and experiences of families and speech-language pathologists.

Population and Sample

The sample is non-probabilistic and consensus-based (Hernández-Sampieri, Fernández-Collado, and Baptista-Lucio 2014) as the participants are sixty-four children with DLO and DLD. It has been decided not to differentiate and to unify children with DLO and DLD as their language development is slower, and many of its characteristics are similar (Acosta, Moreno, and Axpe 2012; Bahamonde, Serrat, and Vilà 2021; Ellis 2007; Serra-Raventós 2002).

These participants have been divided into two groups considering the timing of data collection. The study compares two groups of children: one before the COVID-19 pandemic (2018–2019 and 2019–2020) and another during the pandemic (2021–2022). One of the groups, called the Pre-COVID Group, consisted of thirty-two children aged 3 years to 5 years and 7 months ($x = 61.13$ months, $\sigma = 11.036$); 40.63 percent were female and 59.37 percent male; 56.25 percent were only children while 43.75 percent had at least one sibling. All of these children attended state-subsidized schools and were enrolled in pre-school education and belonged to families with a medium socio-cultural level. This sample was collected as part of a larger research project during the 2018–2019 and 2019–2020 school years before COVID-19 arrived in Spain; during this period, the qualitative questionnaires were not applied to families or speech therapists, only an evaluation of the language development of the children who participated in the study with the same tests as for the Post-COVID Group. On the other hand, the Post-COVID Group consists of another thirty-two children from 3 years to 5 years and 7 months ($x = 51.25$ months, $\sigma = 10.878$); 34.38 percent are female and 65.62 percent are male; 59.38 percent are only children while 40.62 percent had at least one sibling.

As in the Pre-COVID Group, all these children belong to subsidized centers, at the infant education stage and to families of a medium socio-cultural level. This sample was collected between September 1 and December 16, 2021, so they are children who had already been living with COVID-19 during their critical period of language development. The same linguistic assessment tests were applied to this group as to the previous group, in addition to a qualitative questionnaire for their families and speech therapists.

The inclusion criteria for choosing the sample belonging to both groups were as follows:

- They are between 3 and 6 years old.
- Diagnosed with DLO or DLD; both diagnoses are considered because, according to Aguado et al. (2015), DLD is suspected at four years of age and the diagnosis is confirmed at five years of age. Considering the age of our participants, it was decided to include both diagnoses.
- That they have obtained a result of "delayed" in the PLON-R (Aguinaga et al. 2005).
- That the families or legal guardians agree to participate in the study and sign the informed consent form.

Exclusion criteria are as follows:

- Children with hearing difficulties, intellectual disabilities, prolonged respiratory infections, or repeated otitis media that may be the cause of the problem.

At the same time, fifteen registered speech therapists who work with these children in public or private centers, offices, multidisciplinary centers, and early intervention centers) where this type of population is cared for, with professional experience of between 4 and 20 years, and who have had experience before and after the arrival of COVID-19 with children with DLO and DLD, took part. These speech therapists participated by answering a qualitative questionnaire.

In addition, twenty-one families of the participating children in the Post-COVID Group participated by answering a qualitative questionnaire about their perception of their child's language and the possible impact of COVID-19 on their child. There were twenty-one families consisting of father, mother, and/or child/children (90.48%) or single-parent families (9.52% of cases). The ages of the parents are between 31 and 46 years old, and their education is very varied, ranging from primary school to university.

Instruments

The research data are obtained from the application of different standardized assessment tests to the sixty-four participants in the study:

- Oral Language Test of Navarre Revised -PLON-R- (Aguinaga et al. 2005): this test consists of three parts: (1) form: this section provides information on phonological and morphosyntax, (2) content: this section provides information on lexical-semantic comprehension and expressive level and, finally, (3) use which provides data on pragmatics. This test has a reliability of 0.774 for 3-year-olds, 0.771 for 4-year-olds, 0.761 for 5-year-olds.

- Peabody Picture Vocabulary Test (Dunn, Dunn and Arribas 2006): this test measures participants' comprehensive semantic level, has a reliability of between 0.80 and 0.99 and very high content and construct validity.
- Induced Phonological Register (Monfort and Juárez 1996): This test assesses the phonetic and phonological level of the children; neither the validity nor the reliability of this test appears in the manual.

In addition, two questionnaires have been used and distributed through MicrosoftForms, one addressed to speech therapists and the other to families, both of a mixed nature, as they include both open and closed questions. These questionnaires were developed based on the systematic review of the literature (Bahamonde, Serrat, and Vilà 2021; Cabrera-Grosso and Figari 2021; Cabrera-Vintimilla, Cale-Lituma, and Ullauri-Ullauri 2022; Cifuentes-Faura 2020) taking into account the aforementioned inclusion and exclusion criteria.

The questions from the speech therapists are as follows:

- Have you treated children with DLO or DLD before and after COVID-19 appeared? Yes/No
- How many years of experience as a speech therapist do you have?
- Have you noticed that the children who come to your practice now, who have already lived two years of the pandemic, have worse language than the children who came before? (Yes, No, I don't know).
- If the previous answer was positive, in what way have you noticed that their language is worse, in any particular dimension (open question)?
- Have you noticed that more children come to you now for language difficulties than before the pandemic? (Yes, no, I don't know).
- If the answer above is yes, why do you think this might be? (open question).

The questions to families are as follows:

- Do you think the COVID-19 restrictions have affected your child's language development? (yes, no, don't know).
- What COVID-19 prevention measures have affected your child's language development (open-ended question)?
- Where have you taken your child for language development during the period of social restrictions created by COVID-19?
- Do you think your child has had the opportunity to interact with children his/her age in the same way as if COVID-19 had not existed?
- During this period of restrictions, have you carried out activities or actions to alleviate this difficulty in the development of your child's language? (yes/no)
- If yes, please indicate which ones.

Data Collection and Analysis Procedure

The data collection procedure is divided into two phases. A) Pre-COVID phase, which took place during the academic years 2018–2019 and 2019–2020; and B) Post-COVID phase, which took place during the academic year 2021–2022. In both phases, the same assessment procedure was followed for the children, as the same linguistic tests were used, applied by the same six registered speech therapists in the same way. To begin with, the six speech therapists in charge of this evaluation assessed the children with DLO or DLD; for this purpose, the three instruments explained above were used individually in the following order: The Induced Phonological Register (Monfort and Juárez 1996), the Navarre Oral Language Test-Revised -PLON-R- (Aguinaga et al. 2005) and the Peabody Picture Vocabulary Test (Dunn, Dunn, and Arribas 2006). In the first Pre-COVID phase, no other procedure was carried out, but in the second phase, once the linguistic assessment of the children had been completed, the questionnaires were sent to the families and to the speech therapists who carried out the direct intervention with these children.

Once the evaluation is complete, the results are analyzed using SPSS Statistic 24.0 software for Windows, which allows us to obtain the descriptive statistics of the results of all the standardized language tests. The Kolmogorov-Smirnov normality test is also performed, which indicates that the sample does not have a normal distribution, so the non-parametric Mann-Whitney U test is used.

Next, we proceeded to carry out the content analysis (López 2002) of the questionnaires. A set of predetermined categories or codes derived from the theoretical bases were used to organize the information, and the Atlas.ti Windows 8 program was used for the analysis. The answers to each question were analyzed individually and then the following two codes were defined to code quotations throughout the questionnaire with them:

- Causes of Pre-COVID and Post-COVID children's language differences: used when participants' response is related to why there is a disparity in the language of children with DLO or DLD Pre-COVID and Post-COVID.
- Language dimensions affected: this code is used when families/speech therapists talk about the language dimensions they think have been most affected due to the pandemic.

Results

This section presents the results obtained. We start with the quantitative results; Table 1 provides an overview of the descriptive statistics for both groups.

Table 1: Descriptive Statistics for Both Groups

	Pre-COVID Group		*Post-COVID Group*	
Variables	*Mean*	*Standard Deviation*	*Mean*	*Standard Deviation*
DS PLON Form	1.53	1.436	1.44	1.343
DS PLON Content	2.84	1.526	2.91	1.376
DS PLON use	1.28	.991	1.31	.998
DS PLON Total	5.66	3.054	5.66	2.801
RFI unsaid phonemes	74.78	62.186	90.09	55.521
RFI slurred words	39.00	11.854	41.38	10.478
Peabody DS	31.66	19.582	31.13	19.875
Peabody IQ	86.34	22.090	86.63	20.849

Note. DS: Direct Score; IQ: Intelligence Quotient

Table 1 shows that there is no difference in the results of the Direct Score (DS) of the total PLON-R (5.66), but there are differences in the mean of the rest of the variables, with a greater difference in the data shown in the RFI. In some cases, the mean of the results is higher in the Post-COVID group, as in the case of the DS PLON-R Content, the Peabody CI and the DS of the PLON-R Use. This indicates that the Post-COVID group has better results in the lexicon (DS PLON Content Pre- COVID = 2.84; DS PLON Content Post- COVID=2.84; DS PLON Content Post-COVID=2.84; DS PLON Content Post-COVID=2.84; DS PLON Content Post-COVID=2.84). 84; DS PLON Post-COVID Content=2.91) and on pragmatics (DS PLON Pre-COVID use=1.28; DS PLON Post-COVID use=1.31) than the Pre-COVID group, but to a very small extent. Higher results are also found in the RFI unsaid phonemes (Pre-COVID=74.78; Post-COVID=90.09), the RFI misarticulated words (Pre-COVID= 39.00; Post-COVID=41.38) indicating that the Post-COVID Group performs worse in articulation than the Pre-COVID Group as they have more errors. In other cases, greater differences are shown in the Pre-COVID Group than in the Post-COVID Group, such as the Peabody DS, the DS of the PLON-R form, the DS of the PLON-R use.

Figure 1 compares the results of the Pre-COVID and Post-COVID groups of the PLON-R considering the direct scores (normal, need improvement, and delay). A higher percentage of participants scored in the delay category in the Post-COVID group (71.9%) compared to the Pre-COVID group (65.6%), as well as in the use category in the Post-COVID group (62.5%) than in the Pre-COVID group (56.3%). Additionally, there is a notable disparity in the percentage of children categorized as having a normal content score, with 12.5 eprcent in the Pre-COVID group and 6.3 percent in the Post-COVID group.

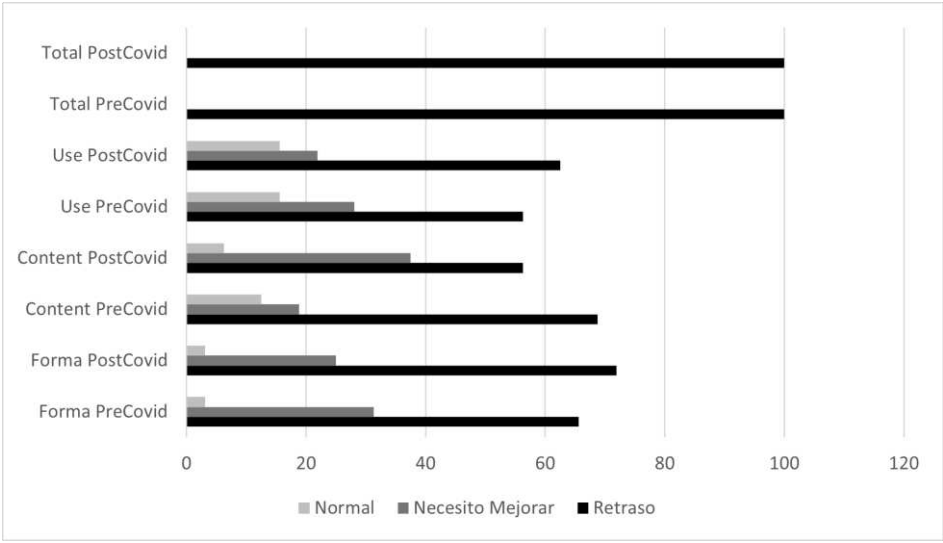

Figure 1: PLON-R Results in the Two Groups
Source: Ayuso-Lanchares et al.

Table 2: Kolmogorov-Smirnov normality test and Mann-Whitney U test.

	Kolmogorov-Smirnov			*U de Mann-Whitney*		
Variables	*Statistic*	*gl*	*Sig.*	*Value*	*Z*	*Sig.*
Age	.154	64	.001	506.000	-.081	.936
DS PLON Form	.234	64	.000	500.000	-.168	.867
Código PLON Forma	.425	64	.000	481.000	-.515	.606
DS PLON Content	.238	64	.000	497.000	-.208	.835
Code PLON Content	.384	64	.000	466.000	-.721	.471
DS PLON use	.228	64	.000	506.000	-.084	.933
Code PLON Use	.366	64	.000	485.000	-.413	.680
DS PLON Total	.212	64	.000	501.500	-.143	.886
Code PLON Total	.536	64	.000	432.000	-2.311	.021
RFI unsaid phonemes	.156	64	.001	376.000	-1.827	.068
RFI slurred words	.121	64	.002	441.500	-.948	.343
Peabody DS	.194	64	.000	510.500	-.020	.984
Peabody IQ	.126	64	.014	506.500	-.074	.941

Note. DS: Direct Score; IQ: Intelligence Quotient

Table 2 presents the results of the Kolmogorov-Smirnov and Mann-Whitney U tests. The Kolmogorov-Smirnov Sig. values are less than 0.05, indicating significant differences between the analyzed variables and a normal distribution. Consequently, there is a lack of homogeneity between the distributions, warranting the use of non-parametric tests such as the Mann-Whitney U test. This test is utilized to assess differences between the medians of

the variables in both groups. All variables exhibit Mann-Whitney U Sig. values greater than 0.05. This suggests that while differences in means are observed, as shown in Table 1, this difference is not significant.

The results obtained in the questionnaires (speech therapists and families) are shown below. Almost all speech therapists have noticed that children who have been living with the pandemic for two years have worse language skills than children who attended their consultations before the pandemic, 13.33 percent consider that they have not noticed this difference and 13.33percent do not know if this is the case or not. While 57.14 percent of families perceived that the pandemic period had influenced their children's language development, 23.81 percent thought it had not and 19.05 percent did not know whether it had or not.

The speech therapists and families were queried regarding the factors contributing to differences language development between Pre-COVID and Post-COVID children. Responses were subsequently categorized under the code "Causes of the differences in the language of Pre-COVID and Post-COVID children." Analysis revealed that 46.67 percent of speech therapists reported greater difficulties at a phonetic-phonological level; while 26.67 percent noted a reduced vocabulary post-pandemic compared to pre-pandemic levels. Another 26.67 percent highlighted a perceived lack of general stimulation, which they attributed to observed language difficulties or vocabulary deficits.

Speech therapists were also surveyed regarding the frequency of children seeking therapy for language difficulties compared to before the pandemic. The majority of participants (73%) reported an increase in the number of children seeking therapy, while 6.66 percent indicated no change, stating that the number of children attended, Additionally, 20 percent of respondents expressed uncertainty regarding any changes in attendance.

Table 3 shows different quotes associated with different codes from the speech therapist and family interviews. Regarding the "Causes of language differences in Pre-COVID and Post-COVID children," we find five answers from the speech therapists and three from the families related to the interaction of these children with other people. There are five quotes from the speech therapists and three from the families related to the use of the mask and a single opinion from the speech therapists who say that, in addition to the previous causes, families and professionals are now more alert and that is why there are more cases, which shows that there are greater difficulties nowadays. Moreover, in two quotes families talk about the difficulties caused by the different confinements.

Table 3: Speech Therapists' and Families' Answers to the Qualitative Questions

Code	*Excerpts from the Speech Therapist Survey*	*Excerpts from the Family Surveys*
Causes of language differences between Pre-COVID and Post-COVID children	"The less contact with other people, the less stimulation..." (Excerpt 1_Survey of speech therapists).	"He has been with few children, we have not gone to the park, now I take him, but he should talk more now" (Fragment 1_Family survey).
	"They have spent much more time alone with their parents and no one else" (Excerpt 2_Survey of speech therapists).	"He doesn't have cousins, he plays with a neighbour, but he doesn't talk much either." (Fragment 2_Family survey).
	"Lack of social contact and possibilities of learning by imitation" (Excerpt 3_Survey of speech therapists).	"He plays a lot with us and with the grandparents and my brother (his uncle), but he doesn't share toys either and he sees that someone takes something away from him and he has to ask for it..." (Fragment 4_Family survey).
	"Lack of social exchange" (Excerpt 4_Survey of speech therapists).	"The mask, not being able to be with other children..." (Fragment 4_Family survey).
	"Little contact with other children and adults" (Excerpt 5_Survey of speech therapists).	"the wearing of masks by others." (Excerpt 6_Family survey).
	"I think that the use of the mask, children do not see the articulatory movements of the mouths of teachers, classmates and other people." (Fragment 6_Survey of speech therapists).	"When they talk to him with a mask on, he doesn't like it and sometimes cries, and I don't think he hears us the same way with it as without it" (Excerpt 3_Family survey).
	"To the use of the mask that produces acoustic distortion of sounds and absence of visual stimulus in communication." (Fragment 7_Survey of speech therapists).	"The measure that has affected her the most is the closure of the nursery school for so long and being at home with us who were teleworking." (Excerpt 5_Family survey).
	"On the one hand, families and professionals are more alert and little by little there is more knowledge about it and on the other hand..." (Fragment 8_Survey of speech therapists).	"What has affected them the most is not being with people, and all the confinements they have made at school, not allowing them to go there regularly" (Excerpt 5_Family survey).

The families also state that they have taken their children to some places to develop their language during the period of social restrictions after the months of confinement (when it was not possible to go to public playgrounds). Almost half of the families (42.86%) state that they have been able to interact with other children within their family, such as cousins, and it has not been necessary to take them to other places, while 19.05 percent state that they have not taken them to nursery schools out of fear. Furthermore, 52.38 percent explain that they did go to nursery schools and 66.67 percent explain that they did take their children to public parks at some point, but that this was not continuous.

All the families state that they have carried out activities or actions to alleviate this difficulty in their child's language development. They refer to activities recommended by their speech therapists, such as: reading stories with them, talking to them at all times, and a series of guidelines provided by the speech therapists for these families.

Discussion and Conclusions

The first was to determine whether children with DLO and DLD have greater difficulties in 2021-2022w than children with these disorders before the pandemic (2018–2019 and 2019–2020). In this sense, it can be determined that there are differences, but these differences are not statistically significant. Contrary to what was assumed a priori, since, according to some authors, children with normotypical language development have difficulties in developing it during the pandemic (Cabrera-Grosso and Figari 2021; Hincapié, López-Boo, and Rubio-Codina 2020). Even so, in our study, non-significant differences are observed, as post-COVID children have greater difficulties in articulation, an aspect also perceived by the speech therapists. In this sense, if one way to increase the intelligibility of their speech and improve their articulation is visual support, offering a visual example of how to articulate different phonemes (García-García 2021), this possibility is reduced by the use of masks (Charney, Camarata, and Chern 2020). Thus, this situation justifies the greater articulation difficulties in post-pandemic children. Despite this justification, it is considered that further research is needed to investigate whether masks do indeed hinder articulation, as Singh, Tan, and Quinn (2021) report that 2-year-olds are able to recognize familiar words when their interlocutor wears masks.

Although we have not found arguments in the scientific literature to justify this result, it is surprising to observe even better results in the section related to semantics and pragmatics in post-COVID children than in pre-COVID children. Although it should be remembered that these differences were not significant.

Leaving aside the language dimensions, said appears that there are no significant differences between children with DLO and DLD before the pandemic, suggesting a degree of consistency in their performance. However, it is important to note that this does not imply identical language profiles between pre- and post-pandemic children, rather, there may still

be qualitative differences and challenges. To further explore these nuances, the second objective of our study was to investigate the perspectives of families and speech-language pathologists regarding the heightened challenges faced by children with DLO and DLD due to the COVID-19 pandemic. In this regard, almost all the speech therapists and many family members felt that the pandemic had affected the children's language development. These perceptions, in addition to their own conviction, may also be due to the views of some researchers about the difficulties caused by masks (Charney, Camarata, and Chern 2020; Cohn, Pycha, and Zellou 2021). These perceptions also appear in some media reports about language difficulties due to the use of masks (Ponce 2022; El Mundo 2022).

In relation to this, the first reason why speech therapists and families think that their children do not improve enough or have worse language is because of the use of masks. This idea is widespread, and even authors such as Cohn, Pycha, and Zellou (2021) point out that even people with normotypical language development have difficulties in identifying words with the mask. Furthermore, according to Charney, Camarata, and Chern (2020), facemasks have affected children with normotypical language development. At the same time, other speech therapists and families report difficulties in other dimensions or globally, although to a lesser extent.

On the other hand, speech-language pathologists consider that more children with SLI and SLD are currently attending consultations than before, so it is necessary to carry out a prevalence study to assess this. However, Mendoza (2016) explains that methodological differences involving various tests and criteria do not allow an accurate prevalence study for children with DLD to be carried out with certainty. In Spain, there is no recent prevalence study, but there is an Anglo-Saxon scientific literature by Norbury et al. (2016) which explains that there is a prevalence of 7.58 percent and that there are more males than females with the disorder; however, this may have changed due to this crisis. In addition to the use of masks, Viola and Nunes (2021) believe that this increase in cases is also caused by a lack of social interaction that has affected the language development of all children, as do some families and speech therapists.

Despite having difficulties due to the lack of interaction due to COVID-19, almost half of the family's state that they have been able to interact with other children within the pandemic and just over half took the children to nursery schools. In addition, all of them carried out the exercises indicated to them by the speech therapists. The latter is one of the guidelines offered by Yafie, Giavarini, and Maulidia (2020) in their article. A speech therapist explains that professionals are more alert right now, but it does not seem a realistic cause, as neither the diagnostic processes nor the psycho-pedagogical processes in schools have changed at both times (Organic Law 3/2020 of 29 December 2020; Organic Law 8/2013 of 9 December 2013).

The limitations of this study are determined by the diversity of characteristics within the group of children with DLO and DLD, making it difficult to make a comprehensive

comparison. In addition, we must consider the small sample presented and the number of variables that may affect these children. However, it is extremely interesting to delve into the complexity of the cases analyzed, given the social interest it has aroused (Diario de Ávila 2022; El Mundo 2022; Gutiérrez 2022; Ponce 2022). Hence, it is necessary to know the needs of children with DLO and DLD to see if they have changed, offering them the resources they need to achieve adequate educational inclusion (Ainscow, Booth, and Dyson 2006). Furthermore, adherence to the principles of universal design for learning, as established by Organic Law 3/2020 of December 2020, in line with current needs. (Moran-Alvarado, Vera-Miranda, and Morán-Franco 2017). This acknowledgment of the limitations underscores the importance of further research in this area, addressing how these factors may impact the study outcomes. The findings of this study offer several important implications for both research and practice in the field of language development in children with DLO and DLD.

Firstly, the results suggest that there are no significant differences in language development between children with DLO and DLD who have experienced the COVID-19 pandemic for two years and those who have not.

Secondly, the identification by families and speech therapists of the use of masks and the lack of social interaction as major factors affecting language development underscores the importance of addressing these challenges in intervention and support programs for children with DLO and DLD. Strategies to mitigate the effects of reduced social interaction and communication barriers, such as increased use of visual aids and targeted social skills training, may be warranted.

Lastly, the conclusion that a prevalence study is needed in this population highlights the importance of ongoing research to better understand the prevalence and severity of DLO and DLD, particularly in the context of the COVID-19 pandemic. This could inform future interventions and resource allocation to effectively support children and families affected by these conditions. Understanding the potential effects of pandemics on children with DLO and DLD can inform preventive measures for future outbreaks. By recognizing the challenges faced by these children during the COVID-19 pandemic, stakeholders may develop proactive strategies to mitigate similar effects in future public health crises.

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Informed Consent

The author has obtained informed consent from all participants.

Conflict of Interest

The author declares that there is no conflict of interest.

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