The Impact of Extreme Situations on Students with Dyslexia: Lessons from the Pandemic

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ABSTRACT

Background: The state of emergency triggered by Covid-19 has significantly impacted various sectors, with education being one of the most affected. This qualitative study explores the psychosocial and educational repercussions for students with Specific Learning Difficulties (SLD), focusing mainly on those with dyslexia and their families. That is, understand how dyslexic students and their families have experienced their confinement and what psychosocial and educational consequences have derived from this situation.

Purpose: To investigate the Covid-19 impact on dyslexic students, identifying specific challenges to improve support strategies.

Method: In collaboration with the Extremadura Dyslexia Association (EXADIS) and the Spanish Dyslexia Federation (FEDIS), we developed a 20-item questionnaire to assess perceptions, experiences, and challenges during lockdown. Nineteen families participated, providing relevant data.

Results: Students with dyslexia experienced an overload of tasks and significant difficulties in understanding content, which increased their levels of stress and anxiety. Concurrently, positive aspects were identified, such as the strengthening of family bonds and improvement in the quality of shared time. However, the teaching staff detected a lack of coordination in the implementation of curricular adaptations and the appropriate follow-up for these students.

Conclusion: These results underline the need for more effective pedagogical strategies and coordinated support to address the educational needs of students with dyslexia in crises.

KEYWORDS

Dyslexia, Covid-19 Impact, Remote Learning Adaptations, Psychosocial Effects, Educational Challenges

INTRODUCTION

The declaration of the COVID-19 pandemic by the World Health Organization (WHO) in March 2020 triggered a series of preventive measures that significantly transformed various sectors, including social, political, economic, and educational realms (Basta et al., 2021). In education, these measures led to the transition from face-to-face teaching to remote learning to mitigate the pandemic's effects (Averett 2021; Porter et al., 2021), profoundly affecting millions of students and their families worldwide[1].

One year into the pandemic, studies began to investigate the indirect effects of the extended school closures on students, covering aspects of learning and physical and mental health[2]. The pandemic's impact was uneven among students, with the loss of learning being particularly complex for those from dis-

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[1] UNESCO. (2020). Global education monitoring report, 2020: Inclusion and education: All means all. UNESCO, 512. https://unesdoc.unesco.org/ark:/ 48223/pf0000373718

[2] Schleicher, A. (2020). The impact of Covid-19 on education. Insights from education at a glance 2020. OECD.

advantaged and minority backgrounds, leading to a higher risk of exacerbated educational disparities. Recent research has highlighted pre-existing educational issues and exposed the inequalities affecting the most vulnerable students (Agostinelli et al., 2020; Colombo & Santagati, 2022; Kuhfeld et al., 2020).

By 2021, with nearly half the world's student population affected by partial or complete school closures, the global impact of these shutdowns became apparent in society[3], significantly widening educational outcome disparities and revealing cracks in the existing support structures (Whitley et al., 2021). Questions emerged regarding the legal framework concerning school inclusion and the measures taken to ensure the right to education during school closures and restrictions (Colombo & Santagati, 2022). Despite attempts to mitigate knowledge loss, longstanding technological, economic, and educational disparities facing society's most disadvantaged educational populations came to light (Andrew et al., 2020). The sudden onset of the pandemic forced families, students, and educators to adapt to a new educational reality marked by unforeseen challenges and an ever-evolving learning environment, posing significant challenges that affected not only global educational practices (Chrzanowska, 2022) but also the emotional and psychological well-being of the majority of students, particularly those most vulnerable.

This situation's emotional, psychosocial, and educational consequences were varied and substantial, notably affecting students with Specific Learning Difficulties (SLD) and their families (Ghosh et al., 2020). The absence of studies on the long-term consequences of confinement during the COVID-19 pandemic, especially regarding the return to the school environment and normal social interactions, underscores the need to explore the specific psychosocial and educational repercussions experienced by students during this crisis, with a particular focus on those with dyslexia and their families (Álvarez, 2020). In addition to the impact that confinement has had on children in their academic performance, as we can see in the Arteaga-Hernández et al. (2024) where it shows the decrease in academic performance, especially among younger students and those with special educational needs.

The research hypothesizes that, although students without specific learning disabilities (SLD) and their families may encounter similar challenges, the psychosocial and educational impacts will manifest differently for students with dyslexia. This assumption is grounded in a thorough examination of the unique experiences associated with dyslexia, aiming to enhance understanding of these distinct dynamics and to inform the development of more targeted and effective interventions.

THEORETICAL BACKGROUND

Definition of Dislexia

Dyslexia has a broad etiology and has evolved over the years. The International Federation of Neurology gave its first definition in the 1980s. It was understood as a disorder manifested in difficulty learning to read despite conventional instruction, adequate intelligence, and opportunities (Samaniego & Luna, 2020). Subsequently, in 2002, the 'International Dyslexia Association' (IDA), now known as 'Annals of Dyslexia,' recognized it as a specific learning disorder resulting from a neurodevelopmental disorder characterized by difficulties in the accuracy and fluency of recognizing written words as well as problems in decoding and spelling (Cuetos et al., 2019). It was then included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V, 2014) within Neurodevelopmental Disorders, specifically as a Specific Learning Disorder, conceptualized as 'an alternative term used to refer to a pattern of learning difficulties characterized by problems with accurate or fluent word recognition, poor spelling, and poor writing ability' (DSM-V, 2014, p. 64). Currently, as Cuetos et al. (2019) comment, considering the various studies related to dyslexia in recent years, we can see that the alterations that prevent these children from learning to read correctly are not visual or auditory, but the deficit is primarily phonological, encompassing three components: phonological awareness, understood as the ability to perceive and manipulate speech sounds; short-term verbal memory or the ability to retain verbal stimuli; and rapid naming, which is the ability to quickly and automatically retrieve visual stimuli. In this same conceptual line on dyslexia and based on the interest in its early detection, new instruments were developed such as DIX (Dyslexia Detection Battery) of Ramos et al. (2019) and CFD 14 (Family Questionnaire for the detection of literacy and dyslexia risks in early childhood and primary education) of (González-Contreras et al. (2024).

Covid and Pandemic

With a clear understanding of the concept of dyslexia, we must place ourselves in the moment the study was conducted, the end of 2019, during the Covid-19 pandemic lockdown. The state of emergency transitioned education from face-to-face to online, leading to educational issues reflected in the content children could not receive. This gap in access to digital resources and the lack of face-to-face support exacerbated the learning challenges for students with special educational needs. Studies have highlighted the significant inequalities experienced by students during the pandemic, particularly those with disabilities, as they faced limited access to the technology and support needed for effective

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[3] UNESCO. (2021). One year into Covid: Prioritizing education recovery to avoid a generational catastrophe. https://unesdoc.unesco.org/ark:/48223/pf0000376984

learning[4] (Patel, 2020). These challenges underscore the need for more robust digital infrastructure and inclusive educational practices during emergency situations. Students with difficulties accessing resources and means for online education and those with learning difficulties were particularly affected (Gayatri, 2020; Jiménez, 2020).

The Role of Families and Teachers During Confinement

Regarding dyslexia and attention to diversity during confinement, Gómez et al. (2020) stated that confinement had a significant impact, increasing inequality among students, especially those with SLD, whose individualized intervention and attention were halted by the lack of face-to-face interaction, conditioning the quality of the educational response.

The migration from the face-to-face teaching model to the online model required significant efforts and involvement from parents and a considerable capacity for teacher adaptation (Pérez-Jorge et al., 2020). For their part, parents have served as a support to mitigate the effects of isolation and a lack of face-to-face support, being a fundamental complement to teachers. As Menéndez and Figares (2020) express, the migration from the face-to-face teaching model to the online model required significant efforts and involvement from parents and a considerable capacity for teacher adaptation (Pérez-Jorge et al., 2020). For their part, parents have served as a support to mitigate the effects of isolation and a lack of face-to-face support, being a fundamental complement to teachers.

Regarding the role of teachers during confinement, we want to highlight the importance they have had in assuming the role of distance educator and adapting to the new situation. Their role has not only consisted of providing educational and didactic materials to children and being in continuous contact with parents to monitor the evolution of their students, but they have also had to offer the opportunity for mutual interaction and the possibility of advice and support.

On the other hand, consideration also had to be given to adapting learning materials for students with difficulties, bearing in mind that many students did not have electronic devices to work remotely. In this new situation, teachers, with countless difficulties, had to provide inclusive education adapted to the exceptional needs arising from the pandemic (Cifuentes, 2020). Regarding this issue, according to Méndez and Figares (2020), we find a scenario in which educational interventions have been less effective, due to the virtuality and distance imposed by the teaching model, which has hindered the development of the emotional bond, thus significantly affecting the developmental progress of students. Teachers had difficulty directly observing

task performance and providing appropriate feedback to students. In addition, in terms of communication barriers with families, these increased due to the need for increased asynchronous and deferred communication. Teachers had to explain via email the objectives and tasks, a fact that conditioned the feedback, generating uncomfortable situations for family members who were not comfortable with the deferred communication models. This fact affected parents' work with SEN students, as many of the specific contents were difficult for parents to access.

The Role of New Technologies in Confinement

The new information and communication technologies (ICT) have played a fundamental role during confinement, supporting students and teachers in maintaining contact and interacting through virtual classrooms. Among the digital tools that educational institutions had to use our platforms and institutional, educational tools related to the public or private sector (Rayuela, EducaMadrid, Séneca), social networks and communication tools (WhatsApp), tools to create and share content (Prezi, Classroom), and interactive tools for daily work (Microsoft package) (González-Afonso et al., 2023; Pérez-Jorge et al., 2023).

Moreover, taking into account the socioeconomic level of families and the difficulties for those less advantaged students, Fernández Enguita (2020) explains that during the pandemic, three gaps were identified in the Spanish education system: firstly, an access gap understood as having or not having access/connection to technological devices, which highlighted the lack of devices in homes (Briesch et al., 2021; Pérez-Jorge et al., 2020). Subsequently, the gap related to the use and quality of these showed that not all students were familiar with the use of technology (González-Afonso et al., 2023; Pérez-Jorge, 2023; Rodríguez-Jiménez et al., 2023). Finally, the educational gap is related to the ability of educational centers and teachers to face the new modality of distance education, that is, whether they have the resources and whether teachers have sufficient competencies to face the new modality of digital education (COTEC, 2020)

Numerous studies have explored the psychosocial and educational impact of the pandemic on students and families. Álvarez (2020) and Menéndez and Figares (2020) highlight the challenges students face in adapting to online learning and the added burden on families and educators during this period. The lack of appropriate accommodations and support mechanisms (Gómez et al., 2020; Rodríguez, 2020) for learners with SEN and dyslexia has been documented. There is a significant gap in the literature regarding how these challenges specifically impacted students with dyslexia and their families during confinement. While previous research refers to the general difficulties faced by students

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[4] Burgess, S., & Sievertsen, H. H. (2020). Schools, skills, and learning: The impact of COVID-19 on education. *VoxEu CEPR Policy Portal*. https://voxeu.org/article/impact-covid-19-education

with SEN, few studies are focusing on the experiences of students with dyslexia in the Spanish context during the pandemic. This study addresses this gap by examining the psychosocial and educational implications for students with dyslexia and their families.

Through this study, we aim to assess the impact of the pandemic on the learning of SLD students and understand the role of families and teachers during confinement.

METHOD

Background

The questionnaire was meticulously designed to facilitate an in-depth examination of the experiences of families with children diagnosed with dyslexia during the unique circumstances of the Covid-19 lockdown. Particular emphasis was placed on key areas such as the management of home-based learning, the specific challenges encountered by students with dyslexia in a remote learning environment, and the psychosocial effects of prolonged confinement on both the students and their families.

Google Forms was selected as the survey distribution tool due to its high accessibility, user-friendly interface, and ability to reach a broad audience. This platform enabled efficient data collection, ensuring comprehensive and meaningful responses from the targeted population.

Given the exceptional conditions under which the study was conducted, methodological options were necessarily limited. As a result, a qualitative, descriptive, and exploratory research design was adopted. The survey, administered via Google Forms, was developed to capture detailed insights into the perceptions, emotional responses, and challenges experienced by students with dyslexia and their families during the lockdown period.

Sample

To obtain a sample of students with dyslexia and their families in the region of Extremadura, we established a collaboration with the Dyslexia Association of Extremadura (EXA-DIS). This association played a crucial role in distributing the survey, using email to contact a wide range of families, thereby facilitating the collection of many survey responses. In parallel, to ensure the representativeness of the sample, we partnered with the Spanish Dyslexia Federation (FEDIS), employing a similar strategy.

The final sample consisted of 19 children and their families. The group included 7 girls and 12 boys, aged between 8 and

17. These students were enrolled in various educational levels, ranging from the third year of Primary Education to the Baccalaureate, which allowed for a diverse and representative view of educational experiences during the lockdown.

This sample selection methodology was designed with the goal of obtaining a comprehensive and representative view of the experiences lived by the studied group, thereby ensuring the relevance and applicability of the study's findings.

Instrument

In response to the restrictions imposed by the state of emergency, an electronic form with open-ended questions was chosen as the most effective means of collecting information. The survey, administered via Google Forms, consisted of 23 items. Of these, 11 focused on the student's well-being, school organization and difficulties, teacher interaction and performance, family relationships, home organization, and potential personal and family benefits derived from the lockdown. The remaining 12 items were directed at parents or legal guardians, exploring similar themes to obtain a comparative view and understand the perceived changes in their children, as well as to evaluate the educational response of the schools and teachers during the confinement period (Appendix 1).

To ensure the validity of the questionnaire content, it was subjected to an evaluation by three expert judges in the field. This process allowed for the refinement of the instrument, eliminating or modifying redundant or inappropriate items, leading to the final version of the survey. Additionally, a pilot study was conducted with 5 students and 4 family members, which helped to determine the final suitability of the assessment tools and to make necessary adjustments to overcome any difficulties in their administration.

Procedure

The procedure for implementing the form was carried out in close collaboration with the Spanish Dyslexia Federation (FEDIS)[5] and the Dyslexia Association of Extremadura (EXA-DIS)[6]. These associations facilitated the distribution of the questionnaire to families with children diagnosed with dyslexia.

The survey was available from March to June 2020, coinciding with the confinement period. This time interval allowed families to participate without pressure, increasing the likelihood of greater participation and quality responses.

After the data collection period closed, the data from the Google Forms were exported to an Excel spreadsheet for analysis. Additionally, the commitment to share the results

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and conclusions with the participants and collaborating associations was reiterated, maintaining an approach of transparency and feedback in the research.

Data Analysis

To analyze the qualitative data obtained from the open-ended responses of students with dyslexia and their families, we employed content analysis, a systematic method that facilitates the identification, categorization, and interpretation of recurring themes within qualitative data. The analysis process began with an initial familiarization phase, during which the researchers thoroughly reviewed the responses to gain a comprehensive understanding of the data.

Subsequently, a coding process was implemented to identify key phrases, concepts, and ideas relevant to the participants' psychosocial and educational experiences during the lockdown. These codes were then organized into broader thematic categories, reflecting the core challenges and issues faced by the participants. The categories were carefully interpreted in alignment with the study's objectives to ensure consistency with the research questions and to enhance the validity of the findings.

Differentiation between the responses of students (boys and girls) and those of their parents or guardians was a critical component of the analysis. This approach allowed for a comparative examination of the distinct perspectives, providing a more nuanced understanding of the lived experiences during the lockdown.

To enrich the qualitative analysis and provide a more personal dimension to the data, significant testimonials from both students and their family members were selected for inclusion in the results. For clarity and confidentiality, each testimonial is identified using a specific coding system:

- The letter 'A' denotes responses from students (*e.g.,* A3 indicates the third student respondent),
- The letter 'F' represents responses from family members (*e.g.,* F5 indicates the fifth family respondent),
- The code 'n' corresponds to the assigned participant number within each group.

This coding system not only facilitates the clear identification of data sources but also ensures the anonymity and confidentiality of participants, in strict adherence to ethical research standards.

Ethical Considerations

Prior to the commencement of data collection, all procedures were conducted in full compliance with relevant data protection regulations and ethical research standards. Participants were provided with detailed information regarding the nature, objectives, and significance of the study to ensure their clear understanding of its purpose.

Informed consent was obtained from all participants, with assurances that their participation was voluntary and that they could withdraw from the study at any stage without any consequences. To safeguard participants' privacy, strict measures were implemented to ensure the confidentiality and anonymity of all collected data.

Participants were explicitly informed that their responses would be handled with the utmost discretion and used solely for research purposes. These ethical safeguards were designed to foster an environment that encouraged honest and authentic responses, thereby enhancing the reliability and integrity of the data.

RESULTS

The study's findings are organized into three main sections to provide a comprehensive understanding of the experiences of students with dyslexia and their families during the lockdown period: the emotional and psychosocial situation, organisation and difficulties in the school environment, and the parent-child relationship.

Emotional and Psychosocial Situation

On an emotional level, among primary school students, 57.8% expressed feeling calm and comfortable at home during the lockdown. Examples of their comments include: "Happy" (A1), "Glad not to go to school" (A2), "Fine" (A4). A 10.5% of the students noted relief at not feeling observed by their peers, as indicated by "Being able to have telework where I don't see how others do things quickly and it takes me time to start" (A3). On the other hand, 15.7% of secondary school students reported feeling distressed and stressed, a feeling that intensifies in baccalaureate due to the uncertainty of the EBAU: "With anxiety and nerves because of the uncertainty of the EBAU and the number of channels my teachers use to communicate with me" (A12). Additionally, 26.3% of the children expressed feelings of sadness and fear: "Sad" (A6), "Not being able to go out on the street, hug and kiss" (A11); "Because I can't see my friends and I'm afraid this will last forever" (A18).

From the families' perspective, 36.8% perceived their children as emotionally positive, admiring their adaptability: "She is getting through the lockdown very well, I think it has not affected her, she has adapted" (F4); "I find him very calm, extremely tidy and organized" (F19). However, another 36.8% observed nervousness and anxiety: "Very nervous and anxious" (F10), "Gets overwhelmed and quits things very often" (F7), "Stressed" (F13), "More irritable" (F6). A 26.3% noticed behavioral changes: "There are good times and bad times" (F8), "Quite moody" (F14), "Moments of ev-

erything, very affectionate and occasionally very frustrated" (F18), "Depending on the days, often very sensitive, crying and getting angry over any little thing. Sometimes overwhelmed too" (F17).

Regarding the psychosocial state, 52.6% of the children showed boredom and lack of social contact. A 42.1% spent time on leisure activities and reflecting on the importance of relationships and solidarity: "The importance of solidarity" (A14), "I am seeing things from another perspective, I have more time to reflect" (A17). The parents reflected concern for others and greater expression of affection: "He cares a lot about how the people around him feel" (F6) and "Misses his friends a lot" (A5). Many students expressed frustration with the inability to socialize, leading to isolation and boredom. For example, one student shared: "I couldn't see my friends or talk to them like before, and that made me feel lonely" (A6). Another student commented: "I felt bored all the time. There was nothing to do, and I missed playing with my friends" (A3).

Although the lockdown improved the emotional state and some school aspects for many students with dyslexia, it also presented unique challenges given their condition.

Organization and Difficulties in the School Environment

Changes in the Educational Dynamics of Students and Parents

The main changes that the students had to make were based on three key aspects (Figure 1): the continuous use of new technologies and the shift in study and learning modes, with a higher percentage of 57.8%: "The change from face-to-face classes to video calls with teachers, the fact of doing

tasks through computer programs and uploading them to different platforms" (A12), "Studying with the mobile and the computer. Making video calls with the teachers" (A6), "Working more with the computer" (A9), "Classes on video calls" (A11). The change in leisure relationships was observed in 42.7%: "Meetings with friends through video calls" (A2), "Not being able to go out on the street, hug and kiss" (A5), "Not being with friends" (A13), "Not being able to see my friends" (A4). Changes in daily routines and schedules were also mentioned, with 31.5%: "Spending many more hours working" (A8), "changes in schedules and routines" (A14), "I don't have school routines because each teacher does something different. And every day is different in terms of schedules" (A12).

In question 13 (Explain what your child has had to change to adapt to the new situation. Please describe how you perceive your child emotionally during confinement (how it affects him/her, changes you observe, etc.), family members responded similarly to their children (Figure 1); regarding schedules and routines, 26.3% of the parents stated that some of the changes during the lockdown corresponded to the rhythm of each day's time: "She has had to change routines a bit" (F17), "We have changed schedules, they get up later and also go to bed later" (F9). Secondly, another 26.3% claim that the changes have occurred predominantly in terms of learning and the use of ICT: "She watches more videos and uses the computer more" (F6), "Adapting to computer media and learning ICT issues that she didn't know" (F15), and lastly, 21% of the families note that they have had to change the way of learning: "The way of learning has changed" (F17), "Mainly the way of learning" (F10). In addition, 21% of parents have stated that their children have not had to make many changes in school organisation and have had good adaptation: "He has adapted very well from the first day" (F3), "I have not noticed hardly any changes, to be honest" (F1).

Figure 1
*Results of the Changes Produced, Students and Parents*
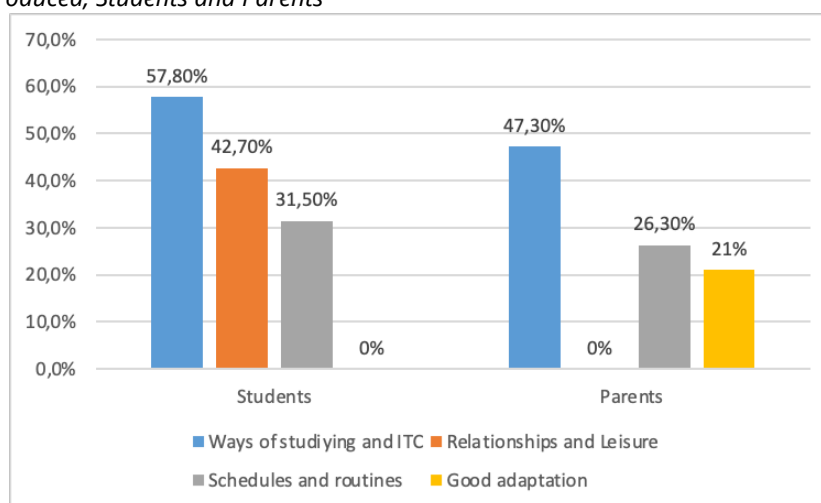
Difficulties

Regarding question 3 (explain what your child has had to change to adapt to the new situation. Please describe how you perceive your child emotionally during confinement (how it affects him/her, changes you observe, etc.), it was observed that 52.6% (Figure 2) of the students confirmed difficulty in understanding and developing the proposed tasks, claiming that they did not adapt to their situation and the lack of explanations: "I struggle to understand the tasks without explanation, my mother helps me, but it's not the same" (A5), "That many things if I do not understand I have to ask, wait for the answer and be lucky to understand it" (A18), "A lot of homework in which my parents and my sister have to help me because many tasks are difficult for me to understand" (A2). 31.5% reported problems with digital platforms, noting that they have struggled to organise due to the different types of platforms and their functionality: "I forget tasks because I have to look in several places: school page, Aules, email, WhatsApp, etc." (A1), "I have problems organising myself, as I receive tasks from four different social networks" (A6), "It was a mess with the platforms and with the homework and video calls" (A15). In addition, 15.7% of the sample agreed on the problem of not having several devices to simultaneously perform school tasks or the professional work of parents, and therefore must share the family computer: "I get ahead with those that don't need a computer because it is my older brother's turn (we only have one)...» (A4), "I get up, have breakfast and at 11 I get on the computer because my sister uses it from 10 to 11" (A16). Furthermore, it was estimated that the lack of organisational ability was one of the difficulties present in 15.7% of the students: "They have to organise it for me" (A19), "I have problems organising myself" (A7), "There are many homework assignments, and they pile up. My mother organises it for me." (A12).

From the families' perspective (question 14) that we can show in Figure 2, it was observed that the respective percentages of each of the difficulties they have found in their children were close to those obtained by the students themselves, specifically, 63.1% of the families claimed that the biggest difficulties were in terms of the children's inability to understand the contents and develop some of the proposed activities, as well as the difficulty in organising themselves: "By herself she is not able to read and do the tasks without me being on top of it. She misses knowledge of vocabulary and understanding about what is asked of her." (F1), "He is not able to organise himself alone because he finds many activities in the classroom and gets overwhelmed." (F12), "There are teachers whose emails are not clear or orderly instructions, so he doesn't know what he has to do" (F8). At least 31.5% had difficulties with ICT, since the students were not very familiar with all the applications and platforms: "All of them, she is not capable by herself. First, the lack of knowledge in handling the computer and the platform." (F3), "In addition to working with applications in which I do not think any child knows how to manage alone." (F11).

Following the line of difficulties in the proposed tasks (question 4), most of the answers were associated with the excess of homework, students felt overwhelmed during the lockdown and showed a sense of being overburden trying to cover all the content and deliver everything on time: "Time passes and I do not have time" (A2), "For having many emails with a lot of information and video calls" (A11), "Because I don't have time" (A8), "There is no time for anything, and I am 12 years old" (A13), "When they send me more problems or activities than they send in physical classes" (A16), "Because they send me many things and sometimes I don't understand them." (A19), "Because they sent many tasks, then less and now again more" (A9), "They send many tasks." (A15), "There are many homework assignments and

Figure 2

Results of the Difficulties Shown by Students and Parents
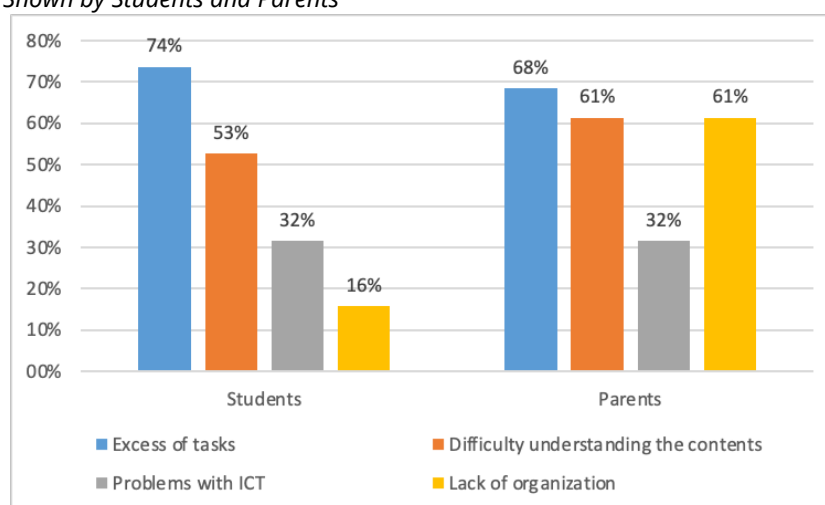
they pile up" (A10). This feeling of overwhelm and overburden by the amount of tasks and the sensation of drowning for not being able to deliver on time represented 73.6% of the students with dyslexia.

Attention to Diversity

Concerning attention to diversity, specifically in response to question 20, it was observed that 63.1% of the evaluated families expressed dissatisfaction with the adopted measures, qualifying them as inadequate or non-existent. The testimonies provided by the participants reflected a general perception that the individual needs of their sons and daughters "are not taken into account" (F2). The parents' concerns became evident, as expressed in their comments, such as "With much sorrow, to see that it is not being attended to as it really needs. They only consider making her a minimum, but I have to ask for explanations of work (…) there is a lack of closeness and much interest in how the student copes with it. Nobody from the center has called us to know how my daughter is handling the tasks. When I send an email complaining about something, sometimes they don't even answer me" (F8) and "Bad, it took a month and a half for the PT to contact my son; his tutor has also not mentioned any help, and no tasks have been facilitated…" (F3).

The families' concern about the limited preparation of the teaching staff to adapt to the circumstances, which led them to constantly negotiate with the tutors to achieve the adaptation of their children's tasks, was highlighted. This finding emphasizes the importance of teacher training in the context of responding to diversity, especially in the field of dyslexia, where the adaptation of methodology significantly affected this group of students.

Furthermore, both families and students with dyslexia presented suggestions through questions 10 and 21, focusing on the need to provide more didactic support material to facilitate the understanding and effective execution of tasks. These recommendations included the request for "everything to be sent explained with audio or video…" (A11) and "to send more videos explaining things" (A13). The importance of individualized adaptation of tasks was also emphasized, reflected in comments such as "That we are all different, some tasks are more difficult for some than for others. If possible, the tasks should be special for each one. And to reinforce what each one needs to review more" (A9) and "That they help us in adaptations in studies" (F15).

A significant portion of students emphasized the need for enhanced teacher training in information and communication technology (ICT) and better coordination among educators. Specifically, 68.4% of the students expressed their desire for teachers to receive more training in information and communication technology (ICT) and teacher coordination. Participants suggested improvements in the coordination of communication systems, tasks, and teaching methods, with comments such as «I would tell them to coordinate and unify criteria regarding communication systems, tasks, and ways of teaching» (A11) and «That they adapt to new technologies and offer classes through video calls and recorded classes that can be sent» (A16). The need to provide teachers with more training in telematic resources and ICT was also highlighted (A4).

Additionally, 21% of the families emphasised the importance of creativity in teaching and updating the use of ICT (Information and Communication Technologies). Opinions such as «More creativity, they are not creative at all, they seem like robots» (F4) and «It is imperative to adapt to current times, as these young people represent the future in a technological era. It is not viable to teach classes without making use of available technological resources. Continuous training is essential» (F18) were reflected.

Parent-Child Relationship and Family Organisation

During the lockdown period, the family became the fundamental pillar in the educational development of children. Parents took on the important responsibility of organising study time and providing support in school tasks, playing an active role as teachers for their own children. The students (68.4%, Figure 3) expressed this in question 6, highlighting the invaluable support of their parents. Examples of these expressions include: «My mother helps me a lot. She copies the agenda with tasks and video call times, also for exams. She wakes me up in the morning…» (A2), «My mother helps me to organise and explains social studies to me, makes diagrams on the board we have and explains the hours and records me reading» (A8), and «My family helps me in doing the tasks» (A4). Additionally, 47.9% of the participants emphasised the crucial role of parents in compensating for the physical absence of teachers, strengthening the relationship and communication between parents and children. Some responses included: «It hasn't changed» (A1), «No, because my mother has always helped me with studies and organisation» (A7), «The relationship has not changed. The only thing is that now we spend a lot of time doing things together» (A16), and «No, the relationship is the same and the habits are similar» (A19).

Family members agreed that the relationship with their sons and daughters improved during the lockdown, resulting in increased trust, communication, and the opportunity to spend more time together in family activities (63.1%). Examples of these perceptions included: «Closer relationship, more trust, he is calmer than when he goes to class and less irritable» (F3), «We are getting to know each other better» (F8), «He tells us when he feels bad, he is closer» (F5), and «The two sisters have started to share many games and their relationship has become much closer and they have many complicit moments together» (F9). According to parents, in 31.5% of cases, the relationship with their children

remained similar or the same as before the state of alarm. Some responses included: «Few changes, really» (F17), «My relationship has not changed» (F10), «It has not undergone changes» (F4), and «No, we have been very well» (F8).

Despite the difficulties faced by families and students with dyslexia during the lockdown, significant family benefits were identified. The responses provided by the children in question 8 revealed that one of the most significant benefits of the lockdown situation was quality time and the opportunity to enjoy family life, in addition to leisure time, as reflected in their responses corresponding to 84.2% of the students participating in the research (Figure 3): «I spend more time with my family and can play more» (A2), «I spend more time with my parents and play more with them» (A7), «I spend more time with my family and have a good time» (A9), «We all spend much more time together» (A12), and «Playing with my friends via video games, talking to them on WhatsApp and Skype, and spending more time with my parents» (A15). In addition, a small percentage (3 out of 19 students) expressed that one of the benefits of lockdown was the opportunity to carry out educational training at home.

Some responses included: «The issue of not having exams, learning without so many exams» (A1), «I am less stressed at home, I am safe» (A8), and «I have learned to handle the computer and its programs much better» (A13).

From the parents' perspective, it was observed that a large percentage (63.1%, Figure 4) highlighted the pandemic's main benefit as being able to spend more time with their children and enjoy family life. The responses to question 18 reflected these perceptions, with examples such as: «We spend more time together and argue much less» (F3), «We are happy doing things together» (F5), «We have more time to be together» (F12), and «I value very positively the fact of having been able to be with my children for so long» (F16). In addition, a small percentage (4 out of 19 families) highlighted that the pandemic allowed them to get to know their children better, discovering their personalities and needs. Some responses included: «It is helping me to better understand my daughter's deficiencies, the autonomy she can have» (F4), «We are getting to know each other better» (F7), and «Closer relationship, more trust, he is calmer than when he goes to class and less irritable» (F11).

Figure 3
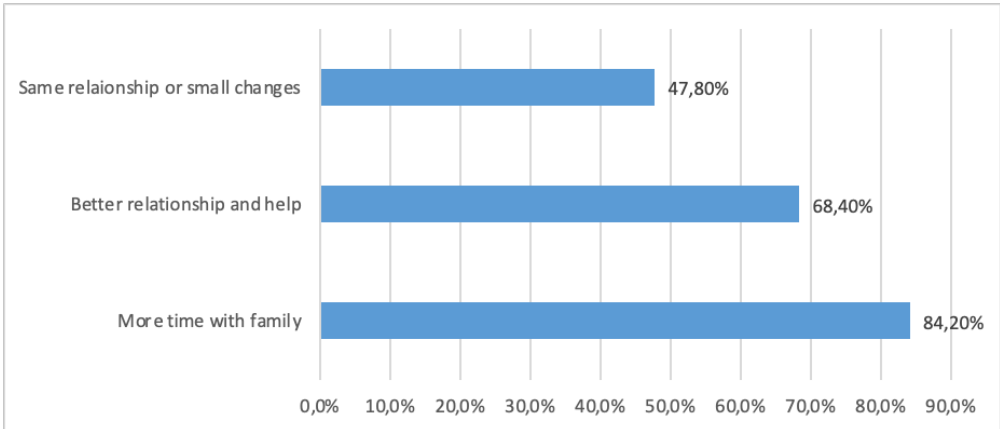
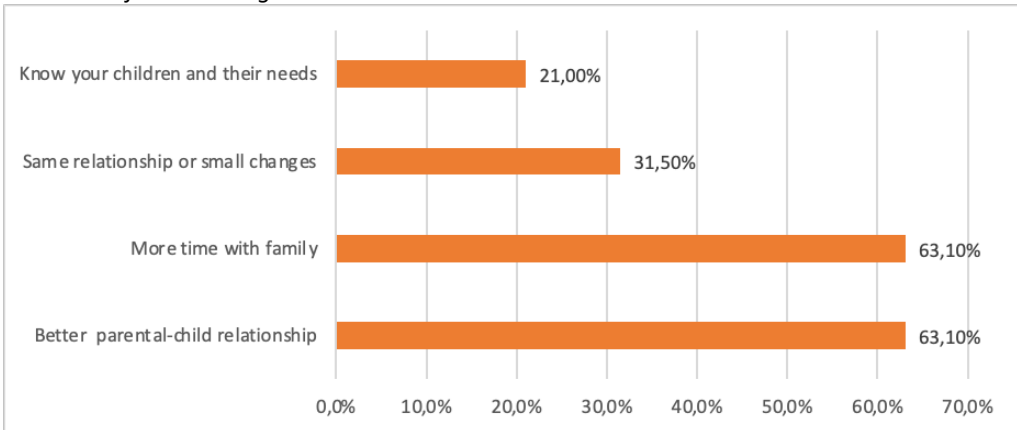*Results of the Benefits of Confinement according to Children*

Figure 4

Results of Confinement Benefits According to Parents

DISCUSSION

Concerning the negative experiences of students with dyslexia and their families during the period of isolation and distance education, it is evident that several significant challenges stand out. One of the main challenges was the lack of empathy and appropriate adaptations by educational institutions. This finding aligns with research showing that the shift to digital learning environments disproportionately affected children with special educational needs (SEN). Many students and their families faced additional barriers, including limited access to devices and digital literacy, which hindered their ability to effectively engage with the educational content (Pérez-Jorge et al., 2024a; Pérez-Jorge et al., 2024b). Furthermore, the mental health toll caused by the lack of social interaction and physical activity during the pandemic was particularly pronounced among students with disabilities (Theis et al., 2021; Loades et al., 2020).

The results of this study reflect that a high percentage (31.5%) of students with dyslexia had difficulties adapting to educational content using information and communication technology (ICT). This coincides with previous findings (Forteza et al., 2021) that also highlighted problems in content adaptation and the lack of appropriate resources to address dyslexia-related difficulties (52.6%). Furthermore, 66.3% of the students stated that teachers did not adequately respond to the needs generated by the pandemic situation and felt that their specific implications in the context of dyslexia were not duly considered. This lack of adaptation and support from teachers may have contributed to the distress of students and their parents trying to provide support in the educational process (Chafouleas, & Iovino 2021; Houtrow et al., 2020). These findings are consistent with previous research suggesting that services for students with special educational needs decreased during the pandemic (Neece et al., 2020) and that necessary adaptations were not provided (Garbe et al., 2020).

The lack of competencies related to designing materials for virtual training was also highlighted as a significant challenge. Uncertainty about the teaching-learning model and the lack of knowledge about technological resources and applications for virtual training hindered communication between students, families, and teachers and limited the monitoring and evaluation process. This aspect underscores the need to adapt the training plans of future teachers, focusing on technological literacy and the design of appropriate pedagogical strategies for virtual environments (Picardo, 2020).

The study's results indicate an urgent need to improve attention to diversity in the educational field. These improvements should focus on training teaching staff, adapting methodology, effectively integrating ICT, and coordinating teachers, with the aim of creating a more inclusive and effective learning environment. As indicated in the study by Asbury et. al (2020), parents' suggestions regarding teachers are to receive specialized professional advice for parents focused on how to meet the educational and mental health needs of their children; as well as establish appropriate tasks and resources for learning at home. In this sense, we also identify with the research by Parra et al. (2020) in which families of children with special educational needs state that they have encountered different difficulties related to the relationship and communication with non-face-to-face school, the demands (homework, tasks, content...) and with the demands and expectations. It is clear that these parents have felt a poor family-school relationship, so good coordination is necessary on future occasions.

The evidence collected in this study reflects the significant impact of the Covid-19 pandemic in the educational context, especially in the attention to students with special educational needs such as dyslexia. The limitations associated with the implementation of virtual education and the specific learning difficulties of students have compromised the educational process. However, in terms of shared time and coexistence, the perceived benefits in the family sphere played a fundamental role as emotional support and facilitated advances and achievements in learning. The family became an essential pillar that largely managed to compensate for the limitations derived from implementing the virtual education model, especially for students with dyslexia.

Online education has seen a significant increase in adoption, especially during the Covid-19 pandemic. However, for students with dyslexia, this transition to virtual environments has presented particular challenges. One key limitation is the lack of access to specialized resources and supports. Students with dyslexia often require specific adaptations, such as readable texts, visual aids, and read-aloud tools, which may not be readily available on online platforms. Additionally, the insufficient training of teachers in technology and pedagogy to meet the needs of students with dyslexia has been a major obstacle. Teacher training must be a priority to ensure that educators are prepared to provide an inclusive and effective learning environment.

During the lockdown, the family's role was crucial in supporting children's education, with parents actively participating as facilitators and educators. This led to stronger parent-child relationships, enhanced communication, and increased family bonding. Most families reported positive changes, with a greater understanding and closeness among family members. Despite challenges, especially for students with dyslexia, the situation highlighted the significant benefits of quality family time and the importance of adapting educational methods to support diverse learning needs.

Limitations

The study reflects limitations in online education for students with dyslexia during the COVID-19 pandemic, high-

lighting the lack of specialised resources and adequate support. Many students faced additional barriers such as limited access to devices and digital literacy, which hindered their effective engagement with educational content. In addition, insufficient teacher training in technology and pedagogy to address the specific needs of students with dyslexia represented a further barrier. This underlines the urgency of improving attention to diversity in the educational field by focusing efforts on teacher training, adaptation of methodologies, and effective integration of ICT.

CONCLUSION

The conclusions derived from this study highlight the importance of addressing the specific needs of students with dyslexia in the context of distance education during emergency situations, such as the Covid-19 pandemic. The results indicate that there were significant challenges in terms of adapting educational content, a lack of adequate support from teachers, and the need to improve training in technological competencies and pedagogical strategies for virtual environments. However, it is crucial to highlight that, despite these challenges, families played a vital role in the educational process of their children with dyslexia, providing emotional support and contributing to academic success. The shared time and coexistence within the family during lockdown were perceived as significant benefits that partly compensated for the limitations of the virtual education model.

These findings underline the importance of designing specific strategies to cater to the diversity of students, especially those with special educational needs, in distance education situations. Efforts are needed to improve teacher training in technological and pedagogical competencies and provide resources and appropriate adaptations for the online learning of students with dyslexia, as explained in Burgos et. al, 2020: having teachers trained with sufficient technological literacy, educational designs adjusted and adapted to virtual environments, didactic planning. Furthermore, it is essential to recognize and value the crucial role of families as collaborators in their children's educational process. To address these limitations, various future lines of action are proposed. Firstly, investing in teacher training in technology and pedagogy adapted to dyslexia is essential. This will enable educators to develop effective strategies for teaching students with dyslexia online.

Another important line of action is adapting content and resources. Online educational materials specifically designed for students with dyslexia, including more readable text formats, interactive exercises, and visual resources, should be created and made available to educators. Furthermore, greater individualized attention for students with dyslexia is proposed. This involves providing personalized support and adaptations according to each student's needs, which may include individual tutoring schedules and detailed feedback. Moreover, it is important to involve families in the educational process. Workshops for parents can be offered, and resources can be provided to help families support their children with dyslexia at home.

Ongoing research is crucial to better understand the experiences of students with dyslexia in distance education environments. This will identify new strategies and effective approaches to address their specific needs. Finally, ensuring universal access to electronic devices and internet connection for all students, even in emergencies, is necessary. This will reduce the digital divide and ensure that no one is left behind in online learning. These future lines of action aim to improve the quality of education for students with dyslexia in online education situations, addressing the identified limitations and promoting a more inclusive and effective learning environment

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The authors declare that they have not used any IA software for the creation of this manuscript. ChatCPT was used for the correction of some English expressions.

DECLARATION OF COMPETING INTEREST

None declared.

AUTHOR CONTRIBUTIONS

Ana Isabel González-Contreras: conceptualization, methodology, software, data curation, writing - original draft preparation, supervision, writing - reviewing and editing.

David Pérez-Jorge: conceptualization, methodology, software, data curation, writing - original draft preparation, supervision, writing - reviewing and editing.

Elena Honorio González: data curation, writing - original draft preparation, validation.

Isabel Alonso-Rodríguez: visualization, investigation, writing - reviewing and editing.

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APPENDIX 1

Questionnaire Questions

Table 1

Questions in the questionnaire addressed to students

Questions for students
1. How do you feel during confinement?
2. What have you changed to adapt to the new situation?
3. What difficulties are you developing and organising your school work?
4. If you feel overwhelmed, explain why.
5. What is your «day-to-day life» like during confinement? A typical day, with the school routines that you have in your family.
6. Has the relationship with your family changed, and how has it changed (if they help you to organise yourself, if they explain some content to you, … if the relationship with the person who helps you most with homework has worsened, etc.)?
7. How are you organising yourself to do your homework (who helps you, how much time do you spend per day, do you take longer than without confinement, what kind of tasks take you longer, what subjects are less complex and more difficult for you)?
8. What personal and family benefits are you experiencing despite the confinement?
9. This is an unwanted and unforeseen situation, but what are you learning positively from this confinement to help you in the future?
10. What would you say to your teachers or professors to help you improve your school work?
11. What other information would you like to provide?

Table 2

Questionnaire questions for pupils' families

A. Questions for parents or legal guardians.
12. Describe how you perceive your child emotionally during the confinement (how it affects him/her, changes you observe, …).
13. Explain what your child has had to change to adapt to the new situation. Please describe how you perceive your child emotionally during confinement (how it affects him/her, changes you observe, etc.).
14. Discuss your child's difficulties in doing and organising him/herself in school work.
15. Explain if you feel overwhelmed or pressured because your child needs to finish homework in the proposed time.
16. Describe «everyday life» during confinement, a typical day, with the family's school routines.
17. Describe if you have experienced any change in your relationship with your child and how it has changed (if you help him/her to organise him/her if any content is explained to him/her, … if your relationship with him/her has worsened/improved).
18. Explain what personal and family benefits about your child you are experiencing despite the confinement.
19. Which competences are you learning that will be useful for your child in the future «thanks» to the confinement (digital competences, organisational competences, creativity, …)?
20. In general, rate the attention of the teaching staff and how your child's learning difficulties have been considered in the confinement situation.
21. What improvements would you suggest to the teaching staff to facilitate your child's learning in the confinement situation?
22. What improvements would you propose to the educational administration to facilitate your child's learning in the confinement situation?
23. What other information would you like to provide?

In addition to these questions, participants were advised to indicate the following characteristics to situate the research:

(1) E-mail address
(2) Studies carried out
(3) Academic Level

(4) Age
(5) Gender
(6) Place of residence