Emotional suffering in school-aged children and adolescents with and without developmental language disorder

Nadia Ahufinger [a,c,1], Mari Aguilera [b,c,d,*,1], Ernesto Guerra [e], Albert Giberga [a], Oriol Verdaguer-Ribas [b], Raquel Balboa-Castells [a], Llorenç Andreu [c], Núria Esteve-Gibert [a,c], Mònica Sanz-Torrent [b,c,d]

[a] *Estudis de Psicologia i Ciències de l'Educació, Universitat Oberta de Catalunya (UOC), Barcelona, Spain*
[b] *Departament de Cognició Desenvolupament i Psicologia de l'Educació, Secció Cognició, Universitat de Barcelona (UB), Barcelona, Spain*
[c] *NeuroDevelop eHealth Lab, eHealth Center, Universitat Oberta de Catalunya, Barcelona, Spain*
[d] *Institut de Neurociències, Universitat de Barcelona, Barcelona, Spain*
[e] *Centro de Investigación Avanzada en Educación-CIAE, Instituto de Educación, Universidad de Chile, Santiago, Chile*

A B S T R A C T

Background: Research on emotional suffering symptoms in individuals with Developmental Language Disorder (DLD) is still limited.
Aims: To describe the emotional suffering experienced by school-aged children and adolescents with DLD.
Methods and procedures: Psychological symptoms were measured using the Spanish version of the Child Behavior Checklist (CBCL) in a sample of 109 (67 boys) children and adolescents with DLD and 101 (62 boys) TD participants reported by their parents.
Outcomes and results: Participants with DLD experienced more emotional problems than TD children according to their parents. Those with DLD displayed significantly more symptoms related to anxiety, depression, social withdrawal, aggressive behavior, social, thought, and attention problems and also on the internalizing and externalizing composite indexes. A higher percentage of participants with DLD scored within the clinical range on almost all CBCL dimensions compared to TD participants. The severity of rule-breaking problems, aggressive behavior, and social problems decreased with age. Both boys and girls with DLD showed an internalizing and externalizing profile, but girls with DLD scored significantly higher on thought problems.
Conclusions and implications: Population with DLD experience heightened emotional suffering, with some experiencing severe symptoms. This underscores the need for preventive programs that address not only the language difficulties in DLD, but also their socio-emotional development.

1. Introduction

Mental health difficulties have increased in the general child population (Deng et al., 2023), with certain subgroups exhibiting more pronounced psychological symptoms. One such subgroup is children with Developmental Language Disorder (DLD; Nudel et al., 2023). DLD is characterized by persistent language deficits in the absence of a known biomedical cause, affecting approximately 7% of school-aged children with similar prevalence in both boys and girls (Calder et al., 2022; Norbury et al., 2016; Tomblin et al., 1997). Recent conceptualizations of this disorder highlight not only language-based deficits but also

weaknesses extending beyond language, including social and academic difficulties (Bishop et al., 2017, 2016). As a result, psychological well-being has increasingly gained attention as an area of investigation within DLD research.

In childhood, reports of mental health problems primarily concern internalizing and externalizing psychological symptoms. Internalizing symptoms include behaviors directed inward, often involving emotional and cognitive processes commonly associated with mood and anxiety disorders (Achenbach et al., 2001). By contrast, externalizing symptoms manifest as outwardly directed behaviors, often affecting the external environment and frequently linked to disruptive behavior and conduct

disorders (Beauchaine & Hinshaw, 2008). From a psychological perspective, we propose using the term *emotional suffering* in this article to refer to both internalizing and externalizing expressions. We use this term because although internalizing and externalizing constructs manifest differently in behavioral expressions, they ultimately originate from underlying emotional suffering, sharing common psychosocial risk factors (Mangion & Buttigieg, 2014; Soto-Sanz et al., 2019). Thus, emotional suffering refers to a state of significant mental or emotional distress arising from various factors, including traumatic events, overwhelming stress, grief, anxiety, or other intense emotions. Standardized rating scales are widely considered the most reliable methods to assess these behaviors (Elliott et al., 1993; McConaughy, 1992; Merrell, 1999). Among the most commonly used instruments for evaluating behavioral and emotional problems in children and adolescents is the Child Behavior Checklist (CBCL; Achenbach, 1991), which is completed by parents, teachers, or other individuals familiar with the child's behavior.

Building on these considerations, recent meta-analyses and systematic reviews emphasize that children with language disorders, including those meeting criteria for DLD, are at increased risk for both internalizing and externalizing symptoms. For instance, studies have consistently shown small to moderate associations between language deficits and elevated levels of anxiety, depression, and somatic complaints, as well as heightened tendencies toward aggression and hyperactivity (Chow & Wehby, 2018; Curtis et al., 2018; Donolato et al., 2022; Hentges et al., 2021; Yew & O'Kearney, 2013). However, these findings are drawn from studies employing diverse methodological approaches and heterogeneous samples, many of which include children with a range of learning difficulties (i.e., dyscalculia, dyslexia, see Donolato et al., 2022) rather than exclusively focusing on DLD. Moreover, when the focus was on language development (Yew & O'Kearney, 2013), the studies included used diverse criteria for diagnosing DLD (previously conceptualized as Specific Language Impairment, SLI), with substantial differences in instruments and thresholds across studies.

Such variability complicates the interpretation and comparability of results. Nonetheless, the collective evidence suggests that the emotional suffering profile in children with DLD involves both inwardly directed distress and outwardly manifested behavioral difficulties (Donolato et al., 2022; Yew & O'Kearney, 2013). Key moderators such as sex and age also appear to influence these patterns. For instance, the link between language deficits and problem behaviors may be more pronounced in males (Hentges et al., 2021), while the severity of these problems tends to intensify with age (Curtis et al., 2018). Moreover, when considering symptom profiles, results from different meta-analyses have shown different results. While Yew and O'Kearney (2013) reported that internalizing problems are particularly salient in children with DLD, Donolato et al. (2022) observed in their sample more externalizing problems. These contradictory findings might be related to the heterogeneity of their participants and inclusion criteria. Nevertheless, both studies reported more internalizing and externalizing problems in populations with language disorders compared to typically developing children.

Despite these convergent findings, several methodological limitations weaken the conclusions that can be drawn from these meta-analyses. On the one hand, measures of emotional and behavioral measures vary across studies, introducing potential heterogeneity in the operationalization of internalizing and externalizing behaviors. On the other hand, the lack of targeted focus on well-characterized DLD groups makes it difficult to discern the unique psychosocial outcomes associated with this population. These limitations highlight the need for more focused research that can disentangle the developmental pathways linking DLD to internalizing and externalizing outcomes, while also examining how these associations evolve across different ages and potentially interact with children sex.

Indeed, prior research has identified a symptom profile in children with DLD that is more closely associated with internalizing problems, such as withdrawal, social difficulties, or attention issues, rather than

externalizing problems like delinquency or aggression (Redmond & Rice, 1998). Coster et al. (1999) further suggested that the absence of aggressive behavior might be a distinguishing characteristic of this population. However, the literature remains inconsistent. While certain studies comparing internalizing and externalizing symptoms have not found significant differences between the two (Curtis et al., 2018; Hentges et al., 2021), others have focused exclusively on one symptom type—often internalizing problems (Conti-Ramsden & Botting, 2008; Ibáñez Rodríguez et al., 2021)—preventing clear conclusions regarding differences in symptom profiles.

Findings on the role of age in the relationship between language difficulties and psychological symptoms are also mixed. It has been hypothesized that as children with DLD become increasingly aware of their difficulties, their emotional distress may intensify. For example, studies show that self-esteem declines over time (Jerome et al., 2002). Longitudinal assessments by Tallal et al. (1989) and Benasich et al. (1993) found that emotional problems, as indicated by global CBCL scores, increased from ages 4 to 8. A meta-analysis by Curtis et al. (2018) similarly demonstrated that older children with language impairments tend to exhibit more externalizing symptoms. In contrast, Redmond and Rice (2002), who followed children from 5 to 8 years, noted a decrease in parent- and teacher-reported internalizing symptoms over time, though social problems persisted. They proposed that initial social withdrawal may evolve into more aggressive and externalizing behaviors as children repeatedly experience academic failures and peer rejection. Nevertheless, not all studies support this developmental trajectory, as some have found that age does not significantly moderate the relationship between language and symptomatology (Chow & Wehby, 2018; Hentges et al., 2021).

Regarding sex differences, existing research in typically developing populations suggests that boys tend to exhibit more externalizing behaviors, while girls show higher levels of internalizing problems (Schulz & Muschalla, 2022; Zahn-Waxler et al., 2008). However, findings for children with DLD are inconclusive. For instance, Tallal et al. (1989) reported that parents rated boys with language difficulties as having more behavior problems and greater immaturity than controls, while these effects did not appear in girls. In the same sample, girls showed more social withdrawal compared to boys. Similarly, Lindsay and Dockrell (2000) found that parents rated boys as displaying more hyperactivity and conduct issues. Lindsay et al. (2007) observed no sex differences in emotional symptoms, conduct problems, hyperactivity, or peer problems, although girls exhibited better prosocial skills and boys had more severe temperament issues. Other studies found no significant sex-related patterns (Conti-Ramsden et al., 2013; Conti-Ramsden & Botting, 2008). Yet, Beitchman et al. (1996) identified that five-year-old girls with language and speech disorders were at greater risk for developing emotional disorders by age 12, compared to boys of the same age. In a meta-analysis conducted by Yew and O'Kearney (2013), boys with DLD appeared at greater risk for behavioral problems, while both sexes showed equal risk for internalizing issues. These discrepancies underscore the complexity of understanding sex differences in the psychological profiles of children with DLD, making it challenging to derive clear guidelines for addressing their emotional suffering.

To address these issues and clarify the mixed findings, the present study aims to examine the emotional suffering experienced by school-aged children and adolescents with DLD, as reported by their parents, in a large and well-defined sample. More specifically, we seek to address three key questions: first, whether these children differ from their typically developing (TD) peers in the severity and clinical significance of psychological symptoms, and if so, whether they show a pattern leaning toward internalizing or externalizing problems. Second, we aim to ascertain the role of sex in moderating the severity or nature of these symptoms. Third, we investigate whether age influences the intensity and type of psychological difficulties faced by children with DLD and by their TD counterparts.

We anticipate that parents of children with DLD will report elevated

rates of psychological symptoms compared to parents of TD children. However, given the inconsistencies in previous findings, it remains uncertain whether these heightened symptom levels will be within the clinical range. Drawing on recent meta-analytic evidence, we hypothesize a broad profile of emotional suffering among children with DLD, encompassing both internalizing and externalizing issues, as well as social, attention, and thought-related problems. Furthermore, we predict that younger children with DLD will exhibit less pronounced emotional difficulties than older children, reflecting the possibility that distress may intensify as awareness of language difficulties increases with age. Finally, we expect to find higher rates of emotional suffering, particularly internalizing symptoms, among girls compared to boys in both the DLD and TD groups.

2. Method

2.1. Participants

This study employed secondary analyses from subsets of four cohorts drawn from distinct research projects. These cohorts were identified by selecting children whose families had completed a psychological symptoms questionnaire. In accordance with recommendations for enhancing transparency in secondary data analyses (Weston et al., 2019), detailed descriptions of the subsamples are presented below. The studies that generated these datasets have been conducted or are currently underway by the Cognition and Language Research Group from the Universitat de Barcelona and Universitat Oberta de Catalunya. All four subsamples were recruited in Barcelona and its metropolitan area, thereby sharing a similar educational and socioeconomic context. Age descriptives for each subsample are reported in Table 1:

- Subsample A: This was a subsample of a cohort of children included in Ahufinger et al. (2021), which included 70 children (35 children with DLD and 35 typically developing (TD) children). In the present study, we included 59 children of this cohort, comprising 25 children with DLD and 34 TD children.
- Subsample B: This subsample consists of 25 children with DLD and 7 TD children that come from a larger project about The Role of Prosody and Gestures in the Acquisition of Pragmatics: Typical and Atypical Populations (PROGESPRAG; PID2020-115385GA-I00).
- Subsample C: This subsample consists of 37 children with DLD and 20 TD children that are part of a larger project titled "Oral Language Intervention Program in Preschool Children for the Prevention of Reading Difficulties" (PREVENIR, PID2020-114690RB-I00).
- Subsample D: This subsample consists of 22 children with DLD and 40 TD children that are part of a larger project which is titled "Emotional well-being and mental health in infants with learning disorders and their families: a comprehensive approach" (CC21–0093).

Taking all the subsamples together, the overall subset of children in the present study included 210 participants (82 girls and 128 boys): 109 children had DLD (mean age in months = 103 (8;07 years;months); SD = 38 months; range: 58 to 202 months) and 101 were TD children (mean age in months = 118 (9;10 years;months); SD = 35 months; range: 59 to

193 months). The two groups (DLD and TD) differed in age distribution but not in sex distribution (see Table 2). Sociodemographic characteristics (parental education and economic status) for both groups are also reported in Table 2.

For all subsamples, participants were required to meet the following inclusion criteria: (a) a nonverbal intelligence quotient (NVIQ) >70; (b) normal hearing thresholds at 500, 1000, 2000, and 4000 Hz at 20 dB, in accordance with the American National Standard (1997); (c) normal or corrected-to-normal vision; (d) typical oral and speech motor abilities; and (e) native Spanish-Catalan bilingualism as reported by parents. Children were excluded if parents reported (a) biomedical conditions commonly associated with genetic or neurological etiologies, including autism, intellectual disability, Down syndrome, or Williams syndrome (Bishop et al., 2017); (b) frank neurological signs; or (c) seizure disorders or the use of medications to control seizures.

2.2. Instruments and procedure

All families of the participating children were invited to take part in each study to fulfill the respective research objectives. The projects received approval from the Ethics Committee of the Universitat Oberta de Catalunya's (UOC) and/or Universitat de Barcelona's (UB). In accordance with the Institutional Review Board (IRB) protocols of both institutions, all families signed a consent form and agreed to participate in secondary analyses derived from the original studies.

Typically developing (TD) children were recruited from seven public

Table 2
Socio-demographic characteristics of the children with Developmental Language Disorder (DLD) and the typically developing (TD) children.

	DLD, N = 109[1]	TD, N = 101[1]	Statistic	p-Value[2]
Age in months	103 (38)	118 (35)	−2.9	0.004
Sex distribution			0.00	0.986
Boys	67 (61%)	61 (60%)		
Girls	42 (39%)	40 (40%)		
Economic status			31	<0.001
<16.000€/year	29 (27%)	6 (5.9%)		
From 16.000€ to 35.000€/year	35 (32%)	26 (26%)		
>35.000€/year	25 (23%)	57 (56%)		
Not reported	20 (18%)	12 (12%)		
Mother's education level			25	<0.001
Elementary school or high school certificate	66 (61%)	39 (39%)		
Bachelor's degree or similar	17 (16%)	20 (20%)		
Master's degree	14 (13%)	36 (36%)		
Phd	0 (0%)	3 (3.0%)		
Not reported	12 (11%)	3 (3.0%)		
Father's education level			20	<0.001
Elementary school or high school certificate	62 (57%)	51 (50%)		
Bachelor's degree or similar	8 (7.3%)	12 (12%)		
Master's degree	10 (9.2%)	25 (25%)		
Phd	0 (0%)	3 (3.0%)		
Not reported	29 (27%)	10 (9.9%)		

[1] Mean (SD); N (%).
[2] Welch Two Sample *t*-test; Pearson's Chi-squared test.

Table 1
Descriptives of age for each subsample.

	Subsample A		Subsample B		Subsample C		Subsample D	
	DLD	TD	DLD	TD	DLD	TD	DLD	TD
	(n = 25)	(n = 34)	(n = 25)	(n = 7)	(n = 37)	(n = 20)	(n = 22)	(n = 40)
Age (months)								
Mean (SD)	157 (25)	149 (22)	92 (15)	97 (25)	66 (4)	70 (5)	117 (18)	119 (20)
Range	109–202	105–193	70–122	59–122	58–77	59, 76	84, 152	76, 152

schools in the Barcelona metropolitan area. Most children with DLD were identified through the GRECIL group research social media networks, as well as various associations and educational services. In particular, they were referred to by the Catalan Center of Resources for Language- and Hearing-Impaired People (CREDA), the Catalan service for school counselling and guidance (EAP), and the Catalan Association of Specific Language Impairment (ATELCA). These organizations collaborate with public and private schools throughout Catalonia to identify children with DLD or language difficulties. Additionally, children from the seven public schools who met the DLD criteria were also included in the DLD group.

2.2.1. Cognitive and language assessment for status confirmation

Children in the DLD group, across all subsamples, had either a formal diagnosis of language impairment or were undergoing the diagnostic process, and most received speech-language services at the time of each study. To confirm their language status, trained researchers administered standardized assessments during each study. Language abilities were evaluated using the Clinical Evaluation of Language Fundamentals – Fourth Edition (Spanish) (CELF-4 Spanish; Wiig et al., 2006) in Subsample A, and the Clinical Evaluation of Language Fundamentals – Fifth Edition (Spanish) (CELF-5 Spanish; Wiig et al., 2018) in Subsamples B, C, and D. The prevailing method for identifying children with DLD for research purposes across Spain and Catalonia has been the use of the Spanish version of the CELF. For sample A, researchers used CELF-4 as CELF-5 (which was standardized with Spanish population including Catalan-spanish bilingual children) was not yet available. Though CELF-4 was originally standardized with Spanish-English bilingual children in the United States, it has been considered the most appropriate tool for identifying DLD in Spain. This is because it assesses Spanish language abilities and shows face validity for the clinical challenges observed in the target population. While standardized assessments normed on Spanish-Catalan bilingual children would be ideal for identification, such tools do not yet exist. In Subsamples A, B, and C, the researchers recorded the participants' Core Language Score (CLS), Expressive Language Score (ELS), and Receptive Language Score (RLS). In Subsample D, researchers recorded only the CLS of participants with language difficulties.

There is no consensus on a specific cut-off point to classify children in the DLD groups within research, as the CATALISE consortium (Bishop et al., 2016) concluded that no clear cut-off distinguishes language disorder from typical variation in language ability. Traditionally, researchers established severe/strict cut-off points to classify children with DLD (e.g., −1.25 SD; Leonard, 1998; −1,5 SD; Aguado et al., 2015). In the Spanish-speaking contexts, there is significant disparity in the value of the cut-off point applied (Andreu et al., 2022). For inclusion in the DLD groups in this study, participants needed a score of at least one standard deviation below the mean (a composite score of 85 or less) on either the CLS, ELS, or RLS. Additionally, parents or educators must have reported concerns about language difficulties (Castilla-Earls et al., 2020). The average composite scores were as follows: CLS (M = 70.8, SD = 13.2), ELS (M = 66.1, SD = 13.0), and RLS (M = 78.6, SD = 12.7). With this −1 SD criterion, the CELF-5 CLS, ELS, and RLS each have a sensitivity of 1.00 and specificity of 1.00. Given the high degree of bilingual language use (Catalan-Spanish) in Catalonia, speech-language therapists allow children to respond in either Catalan or Spanish, and both responses are accepted as valid.

To be included in the TD group, children in all subsamples were required to be performing at grade level, have no history or diagnosis of language learning disabilities, show no parental concerns regarding language or learning skills, and have never received speech or language services. In Subsamples A, B, and C, children were further required to score above 1 SD on the CELF Core composite scale (M = 105.5, SD = 10.0; composite score ≥ 86). In Subsample D, TD children needed to score above 1 SD on two standardized tests: one assessing grammatical comprehension, the Test de Comprensión de Estructuras Gramaticales

(CEG; Mendoza et al., 2005; M = 49.7, SD = 22.9), and the expressive vocabulary subtest of the Kaufman Brief Intelligence Test (K-BIT–Voc; Kaufman & Kaufman, 2004; M = 96.6, SD = 13.5). Although six participants in Subsample D scored below 1 SD on either the CEG or the K-BIT–Voc, they were retained in the TD group because neither parents nor teachers reported concerns at home or school.

All participants in all subsamples were evaluated using the nonverbal IQ (NVIQ) portion of the Kaufman Brief Intelligence Test (K-BIT; Kaufman & Kaufman, 2004). Nonverbal IQ scores were significantly lower in the DLD group (M = 100, SD = 14) compared to the TD group (M = 108, SD = 13), t(207.76) = −4.4, p < .01.

2.2.2. Assessment of emotional suffering

To assess psychological symptoms in school-aged children, this study used the Spanish version of the Child Behavior Checklist/4–18 (CBCL; Achenbach, 1991), a parent-report questionnaire for individuals aged 6 to 18 years. The CBCL comprises 118 items evaluating behavioral problems and 20 items evaluating social competence. Each item is rated on a scale from 0 to 2, based on its frequency over the preceding two months. Internalizing symptoms are assessed through three dimensions: (1) "Withdrawn," consisting of eight items related to isolation and loneliness, (2) "Anxious–Depressed," comprising 13 items reflecting anxiety and depressive symptomatology, and (3) "Somatic Complaints," encompassing 11 items capturing physical symptoms such as nausea and stomach problems. Externalizing symptoms are measured by two dimensions: (1) "Rule-Breaking Problems," assessed by 17 items related to delinquent behaviors, and (2) "Aggressive Behavior," assessed by 18 items measuring disruptive behaviors. In addition, three other dimensions are evaluated: "Social Problems," addressing difficulties with peer relationships and social acceptance; "Thought Problems," capturing psychotic-like experiences; and "Attention Problems," assessing difficulties in maintaining attention and concentration. Each dimension is assigned a T-score derived from a normative population. A T-score from 65 to 70 is considered clinical borderline level and above o equal 70 is considered clinical cut-off point.

The Spanish version of the CBCL test is reported to have strong psychometric properties (UEDPD, 2013). In the present study, Cronbach's α values for the withdrawn, anxious–depressed, and somatic complaints scales were 0.90, 0.94, and 0.95, respectively, while the values for the rule-break problems and aggressive behavior scales were both 0.97. For the composite dimensions, internalizing and externalizing, Cronbach's α was 0.98. In addition, the α values for social problems, thought problems, and attention problems were 0.93, 0.96, and 0.92, respectively. These consistently high α values indicate strong item intercorrelations, supporting the reliability and internal consistency of the instrument in this sample.

2.3. Data analysis

We employed both descriptive and inferential statistics, including 95% confidence intervals (CIs) and a regression analysis approach. Confidence intervals were used to address the first research question, examining whether children and adolescents with DLD differ from those with TD, and whether these differences meet clinical criteria. Additionally, an ordinary least squares regression analysis was performed to evaluate the potential effects of sex and age. The model included group (DLD vs. TD), sex (female vs. male), and age (in months) as main effects, as well as nonverbal IQ as a control variable.

3. Results

All the results presented in this article refer to children's symptoms according to their parents. With the aim of not being reiterative, we will refer from now on to children's symptoms. Fig. 1 shows the mean scores for each dimension of the CBCL questionnaire, including 95% confidence intervals, for both groups (DLD vs. TD). As indicated in the figure,
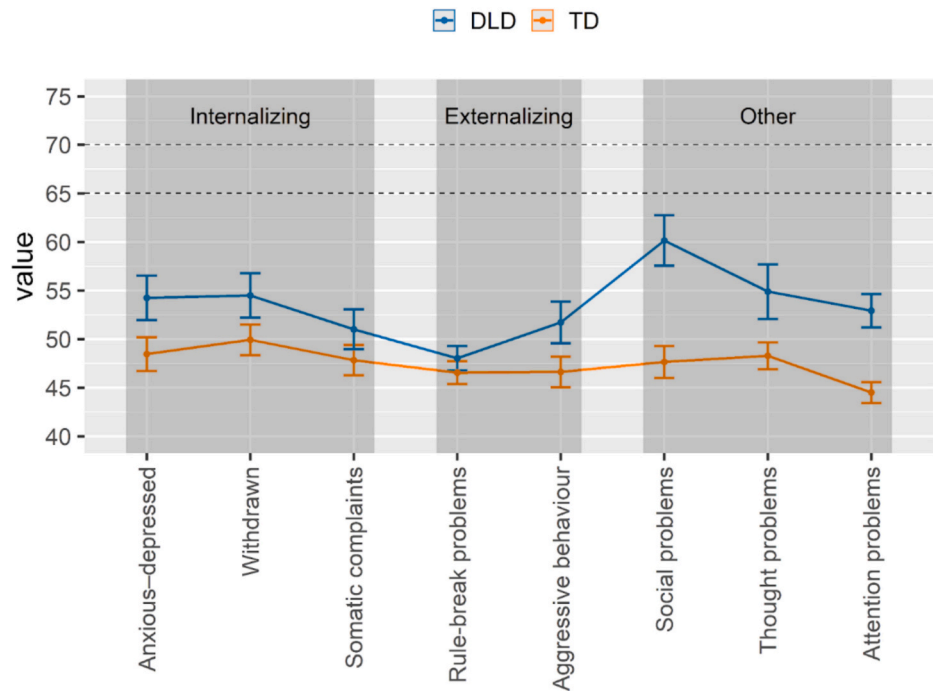
Fig. 1. Mean score per dimension as a function of participant's group.
Note. Broken lines = Borderline clinical range.

children with DLD generally display higher scores than their TD counterparts, though none of these mean scores reach the borderline clinical threshold range (65–70). With the exception of the somatic complaints and rule-break problems dimensions, the confidence intervals suggest that children with DLD tend to exhibit elevated scores, particularly in the domains of social, thought, and attention problems.

A regression analysis corroborated the interpretation derived from the descriptive data. Significant group differences emerged for the anxious–depressed dimension ($\beta = 5.24$, SE $= 1.59$, $t = 3.28$, $p < .01$), withdrawn ($\beta = 5.40$, SE $= 1.55$, $t = 3.47$, $p < .001$), aggressive behavior

($\beta = 4.26$, SE $= 1.46$, $t = 2.91$, p $< .01$), social problems ($\beta = 11.63$, SE $= 1.71$, $t = 6.79$, p $< .001$), thought problems ($\beta = 6.56$, SE $= 1.74$, $t = 3.75$, $p < .001$), and attention problems ($\beta = 7.65$, SE $= 1.13$, $t = 6.77$, p $< .001$). In contrast, no significant group differences were observed for somatic complaints or rule-break problems ($p > .05$).

Interestingly, our regression analysis also identified a significant effect of age on rule-break problems ($\beta = -0.05$, SE $= 0.01$, $t = -4.325$, p $< .001$), aggressive behavior ($\beta = -0.05$, SE $= 0.02$, $t = -2.51$, $p < .05$), and social problems ($\beta = -0.04$, SE $= 0.02$, $t = -2.11$, $p < .05$), as well as a significant effect of sex on thought problems ($\beta = 3.50$, SE $=$
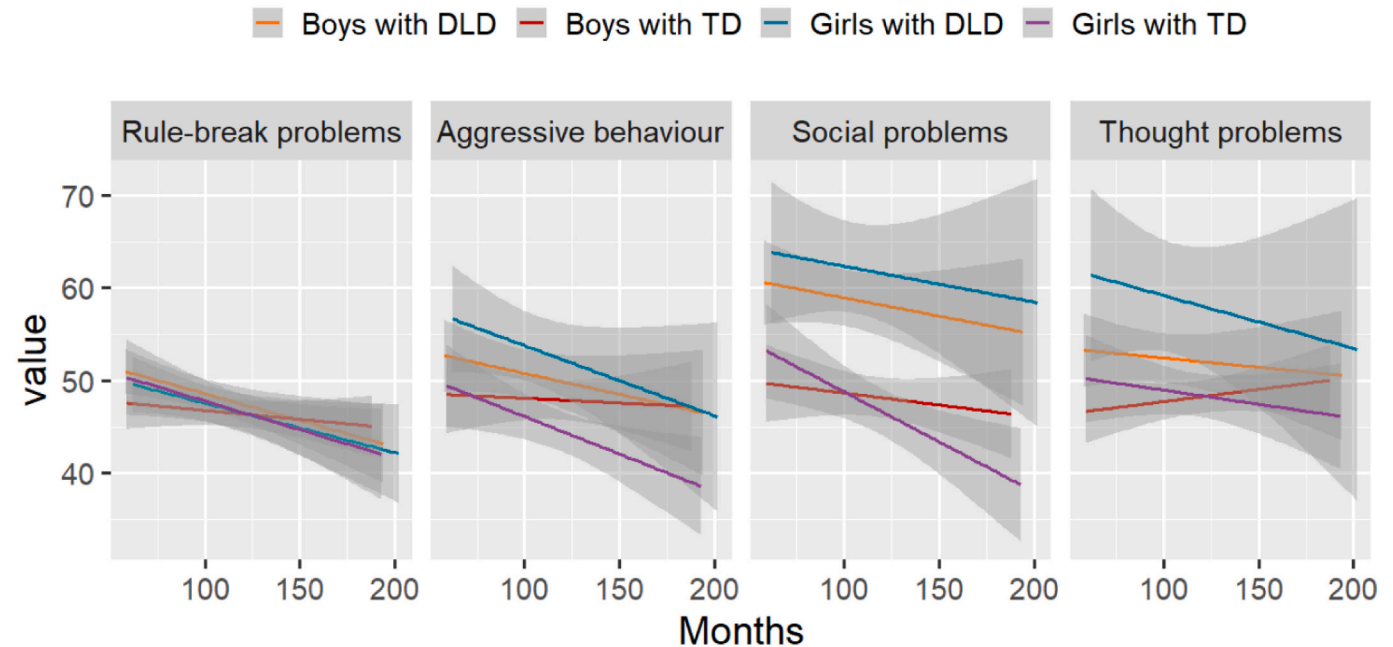

Fig. 2. Scatterplots cross age (in months) and dimension values as a function of group (DLD vs TD) and sex (girls vs boys). Regression lines represent the relation between these two continuous variables per subgroup.

1.65, $t = 2.11$, p < .05). Fig. 2 illustrates these effects by depicting group (TD vs. DLD), sex (boys vs. girls), and age (in months) as continuous variables. As shown, rule-break problems, aggressive behavior, and social problems tend to decrease with increasing age across both sexes and groups. In contrast, the pattern for thought problems is less clearly associated with age, and the most pronounced differences arise among girls with DLD.

Two additional regression analyses on two composite measures—Internalizing and Externalizing—computed as the average of their respective dimensions were conducted. The results indicated main effects of group (DLD vs. TD) on both Internalizing ($\beta = -5.04$, SE = 1.41, $t = 3.554$, $p < .001$) and Externalizing ($\beta = 3.07$, SE = 1.15, $t = 2.660$, $p < .01$), as well as a main effect of sex for Externalizing ($\beta = -3.59$, SE = 1.09, $t = -3.276$, $p < .01$). No other effects were found. Fig. 3 illustrates these patterns. As shown in the right panel, the main effect of sex detected in the regression analysis appears to be primarily driven by differences between girls with TD and the other three subgroups.

Finally, to examine group-level differences in borderline clinical-range and clinical-range CBCL scores more closely, we analyzed the number of children with T-scores of 65 or higher. This approach aimed to detect patterns that might be obscured by group averages. Table 3 shows that children with DLD were significantly more likely than children with TD to score 65 or higher, especially in the internalizing composite dimension and in the anxiety-depression, withdrawn behavior, attention problems, aggressive behavior, thought problems, and social problems dimensions.

4. Discussion

This study aimed to address three key gaps in the literature on emotional suffering in children with DLD: the nature of their emotional profile, the influence of sex, and the effect of age. To do so, we examined the psychological characteristics of children with DLD as reported by their parents. We hypothesized that parents of children with DLD would report higher rates of emotional suffering compared to parents of children with TD, and we also explored whether these increased rates would reach clinical levels.

The results showed that although children with DLD obtained higher scores in nearly all dimensions of the Child Behavior Checklist (CBCL), their overall scores remained within the normal range as a group, in line with previous findings by Redmond and Rice (1998, 2002). Nonetheless, despite most children with DLD scoring in the normal range, a noteworthy proportion fell above the borderline clinical range for certain dimensions, particularly in the internalizing composite dimension and in the anxiety-depression, withdrawn behavior, attention problems, aggressive behavior, thought problems, and social problems dimensions. These results are consistent with the work of Noterdaeme and Amorosa (1999) and Willinger et al. (2003), who also observed a greater number of children with DLD scoring in the clinical range on CBCL dimensions.

Although there is variability in psychological symptoms within this population (some within the clinical range and others not), considering the literature and the results of the present study demonstrating their high risk of experiencing such symptoms, it is crucial to adopt a preventive approach. This is particularly important as previous studies with children with other neurodevelopmental disorders have shown that emotional problems tend to increase during preadolescence and adolescence (Morales-Hidalgo et al., 2023). Preventive programs for emotional symptoms can be categorized into selective interventions, targeting at-risk populations like children with DLD, and indicated interventions, focusing on individuals with early or mild symptoms (Fusar-Poli et al., 2021; Gordon, 1983). Recently, Piqueras et al. (2024) proposed a more nuanced approach, emphasizing personalized treatments tailored to the severity of symptoms. Specifically, for children with language difficulties, these preventive programs should take into account the interrelationship between language, emotion, and mental health (Nook, 2023). Griffiths et al. (2024) recommend including language-focused activities that build emotion-processing skills—such as expanding emotional vocabulary, enhancing storytelling, and using past and future tenses to discuss stressors. Further research studies on these preventive programs are needed in a population with DLD to evaluate their efficacy through comparisons with a control group and/or pre-post test designs.

The second hypothesis proposed that children with DLD would exhibit a generalized profile of emotional suffering as reported by their parents. Although there was an overall trend of higher emotional suffering across all dimensions among children with DLD, statistically significant differences emerged in only six of the eight dimensions assessed (anxious–depressed, withdrawn, aggressive behavior, social problems, thought problems, and attention problems). The remaining two dimensions (somatic complaints and rule-breaking) showed no significant group differences. These findings are broadly consistent with previous research using similar standardized questionnaires. For example, Willinger et al. (2003) and Özcebe et al. (2020) reported significantly higher CBCL scores in children with DLD compared to controls, although their results included all dimensions.

Our findings also parallel those of earlier studies highlighting elevated scores in withdrawn (Redmond & Rice, 1998, 2002), social problems (Conti-Ramsden et al., 2013; Eadie et al., 2018; Redmond & Rice, 1998, 2002), and attention problems (Bakopoulou & Dockrell, 2016; Eadie et al., 2018; Gregl et al., 2014; Redmond & Rice, 1998) for children with DLD. Among the dimensions assessed, children with DLD in this study displayed the highest scores in the social problems domain. This result aligns with previous research demonstrating that children and adolescents with oral language difficulties experience more social problems and are at greater risk of bullying victimization than their typically developing peers (Durkin & Conti-Ramsden, 2007; Esteller-Cano et al., 2022; Ibáñez Rodríguez et al., 2021).

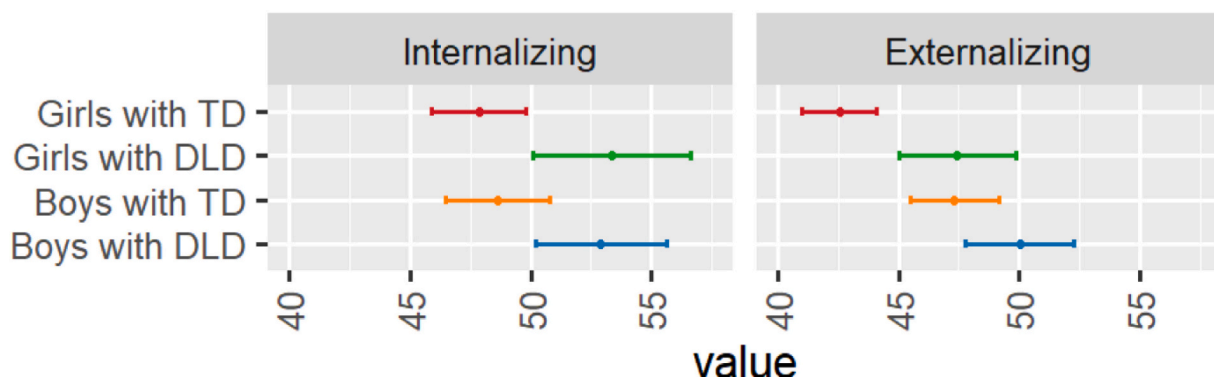Other dimensions, such as somatic complaints, anxious–depressed

Fig. 3. Mean values (and CI95% as error bars) for the two compound measures (Internalizing, Externalizing) as a function of group and sex.

Table 3

Distribution of the number of children who scored 65 or higher across the CBCL dimensions.

	TD (n = 101)		DLD (n = 109)		χ^2
	Above borderline clinical range	Under borderline clinical range	Above borderline clinical range	Under borderline clinical range	
Internalizing	5(5.0%)	96(95.0%)	16(14.7%)	93(85.3%)	4.48*
Withdrawn	3(3.0%)	98(97.0%)	14(12.8%)	95(87.2%)	5.61*
Anxious–depressed	8(7.9%)	93(92.1%)	22(20.2%)	87(79.8%)	5.48*
Somatic complaints	4(4.0%)	97(96.0%)	10(9.2%)	99(90.8%)	1.53
Externalizing	2(2.0%)	99(98.0%)	6(5.5%)	103(94.5%)	0.95
Rule-break problems	1(1.0%)	100(99.0%)	3(2.8%)	106(97.2%)	0.18
Aggressive behavior	4(4.0%)	97(96.0%)	14(12.8%)	95(87.2%)	4.21*
Social problems	5(5.0%)	96(95.0%)	40(36.7%)	69(63.3%)	29.52***
Thought problems	3(2.0%)	98(97.0%)	18(16.5%)	91(8305%)	9.23**
Attention problems	0(0.0%)	101(100.0%)	12(11.0%)	97(89.0%)	9.84**

Note: TD = Typically developing children; DLD = Children with developmental Language Disorder.

* $p \leq 0.05$.
** $p \leq 0.01$.
*** $p < .001$.

symptoms, thought problems, and rule-breaking behaviors, have received less attention in research on children with DLD. Nonetheless, some studies have reported elevated rates of these symptoms in this population (Gregl et al., 2014; Özcebe et al., 2020; Willinger et al., 2003). Our findings differ from earlier research that has primarily associated DLD with internalizing behaviors (Redmond & Rice, 1998) or from those that found no differences between children with and without DLD in internalizing or externalizing measures (Kilpatrick et al., 2019; Valera-Pozo et al., 2020). Instead, our results suggest that emotional suffering in children with DLD can manifest as both internalizing and externalizing behaviors, as well as social and attention problems. This pattern aligns with previous meta-analyses on psychological symptoms in DLD (Donolato et al., 2022; Hentges et al., 2021; Yew & O'Kearney, 2013), which indicate a mixed profile involving both internalizing and externalizing dimensions.

The third hypothesis, proposing that age would influence the manifestation of emotional suffering—such that younger children with DLD would exhibit fewer symptoms than older children—was not confirmed. Instead, we observed age effects in only three of the eight dimensions assessed (rule-breaking, aggressive behavior, and social problems), and these effects ran contrary to the expectations set by previous literature (Benasich et al., 1993; Curtis et al., 2018). Specifically, symptoms in these three dimensions decreased as children grew older. It is possible that, despite persistent language difficulties, the natural development of communicative skills and continued language therapy contribute to reductions in disruptive behaviors and improvements in peer interactions, potentially resulting from enhanced abilities to express emotions and clarify social situations.

Contrary to Redmond and Rice's (2002) hypothesis that aging would lead to increased aggressive and externalizing behaviors due to repeated academic failures and peer rejection, our findings suggest a different trajectory. They also contrast with recent meta-analyses concluding that age does not moderate the relationship between language difficulties and psychological symptoms (Chow & Wehby, 2018; Donolato et al., 2022; Hentges et al., 2021). These discrepancies may arise from variations in emotional and social development among different groups, with some children showing no changes, while others experience onset of symptoms in childhood or adolescence (Conti-Ramsden et al., 2019).

Overall, the literature consistently indicates that children with DLD experience persistent psychological problems over several years, significantly affecting their daily lives. Future studies should therefore continue to investigate how the expression of psychological suffering evolves with age.

Finally, we hypothesized that girls in both groups would exhibit higher rates of emotional suffering than boys, particularly in internalizing symptoms, as suggested by studies on TD populations (Altemus et al., 2014; Carter et al., 2010; Van Droogenbroeck et al., 2018).

However, this hypothesis was not fully supported. In our analysis of the two composite measures (internalizing and externalizing), a sex effect emerged only for the externalizing dimension, with TD girls displaying the lowest rates of externalizing problems. These findings are consistent with the notion that children internalize societal expectations, and that boys, more than girls, tend to conform to gender stereotypes of disruptive behavior (Bailey, 2013; Määttä & Uusiautti, 2020).

In forming our hypotheses, we anticipated a similar pattern within the DLD population, aligning with Ahufinger and Aguilera's (2022) argument that girls with DLD may be less frequently identified due to expressing emotional suffering differently than boys. We expected boys with DLD to exhibit more externalizing behaviors, reflecting the challenges they perceive in academic and social contexts. Conversely, we presumed that girls with DLD would be more likely to mask their difficulties through isolating behaviors, a form of internalizing symptomatology less apparent to teachers and thus less likely to prompt professional referrals. Contrary to these expectations, our findings indicate that both boys and girls with DLD can manifest internalizing and externalizing profiles.

Notably, in terms of externalizing symptoms, girls with DLD displayed a pattern more similar to TD boys than to boys with DLD, who tended to present more frequent externalizing symptoms. These results suggest that gender stereotypes may exert less influence on girls with DLD than on TD girls, possibly due to the high levels of emotional suffering that require diverse behavioral expressions. Such findings are consistent with those of Yew and O'Kearney (2013) and Hentges et al. (2021), who found no sex effects on internalizing profiles in children with DLD, yet identified a higher risk of externalizing symptoms in boys with DLD.

A noteworthy, sex-specific aspect of the emotional suffering profile was the significantly higher rates of thought problems observed in girls with DLD. These thought problems, which involve psychotic-like symptoms (e.g., difficulties removing certain ideas from one's mind, obsessions, nervous gestures or movements), have received limited attention in research on DLD. It remains unclear why girls with DLD may express emotional suffering through these particular symptoms.

These findings underscore the importance of incorporating a gender-sensitive perspective in research on DLD, similar to the approaches adopted in studies on Autism Spectrum Disorder (ASD) and Attention Deficit Hyperactivity Disorder (ADHD; Supekar & Menon, 2015; Young et al., 2020). Such an approach has enhanced the characterization of female profiles and prevented the underdiagnosis of girls in these populations, a bias that previously arose from a predominantly male-focused understanding of the disorders. Applying this perspective to DLD research will support improved identification, understanding, and intervention strategies for girls with DLD.

The present study has several limitations worth noting. First, it relies

on secondary data analyses. Although the use of secondary data is valuable given the challenges of recruiting clinical populations, the samples originate from different studies, introducing heterogeneity—particularly in the assessment tools used to confirm diagnostic status. Additionally, the study employed a two-gate sampling approach, which may have introduced bias about by overrepresenting children with DLD who also present with psychological symptoms. While two-gate sampling is a common strategy in clinical research, it could be particularly problematic for clinical populations known to exhibit more psychological symptoms compared to healthy peers, since such individuals are more likely to be identified and referred for services. Yet, the DLD sample was recruited from family associations and educational services, rather than mental health services. Moreover, in the case of DLD, the evidence that these children experience more psychological symptoms than controls has only recently emerged, and therefore such findings need to be corroborated. In this context, when children were not recruited from mental health services, we considered a two-gate sampling as a feasible approach with its known limitations. Future investigations should address these limitations by prioritizing single-gate or population-based recruitment methods. Such approaches would better capture the full spectrum of variability within the DLD population, reduce potential bias, and ultimately strengthen the generalizability of findings.

Second, the data were collected exclusively through parent-reported measures. Future studies would benefit from incorporating multiple sources of information, such as teacher reports or clinical assessments, to gain a more comprehensive understanding of children's psychological functioning.

Third, the clinical sample primarily represents school-age children and adolescents, with an overrepresentation of children aged between 5 and 6 years. Future research should aim to recruit a more evenly distributed age range to enhance the generalizability of the findings.

Moreover, children with DLD in our sample tended to have a lower socioeconomic status (SES) than children with TD, consistent with previous research (Norbury et al., 2016). Due to missing data (18% of parental reports), we were unable to include SES in our main analyses. Future studies should examine the specific role of SES in emotional suffering within this population.

A fourth limitation relates to sex distribution. As is common in DLD research, boys were overrepresented. Future studies should place greater emphasis on identifying DLD in girls, who may be underdiagnosed.

Finally, this study was cross-sectional in nature, limiting the ability to draw causal inferences. Future longitudinal research is needed to establish a clearer temporal relationship between DLD and emotional symptomatology.

Despite these limitations, our findings underscore persistent differences in emotional suffering between children and adolescents with and without DLD, as well as the importance of considering sex and age when characterizing their emotional profiles. The results highlight the need for intervention strategies that extend beyond language remediation, incorporating socio-emotional support tailored to individual needs. By broadening our perspective on psychological symptoms and integrating a gender-sensitive approach, we may enhance both the identification and treatment of emotional suffering in children with DLD, ultimately fostering more favorable developmental outcomes.

4.1. Conclusions

In conclusion, this study emphasizes that addressing language difficulties alone is insufficient for children with DLD, as reported by their parents. Instead, it calls for prevention and intervention programs that encompass both language and socio-emotional development. By attending to these interconnected aspects, we can help ensure their long-term quality of life.

Data availability

Data will be made available on request.

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